

THE ARCHITECTS' JOURNAL



standard contents

every issue does not necessarily contain
all these contents, but they are
the regular features which
continually recur

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No. 3373]

[Vol. 130

THE ARCHITECTURAL PRESS

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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to I one week, I to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

ILA	Institute of Landscape Architects. 1, Park Crescent, Portland Place, W.1. Museum 3473
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2. Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1. Museum 7197
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1. Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3. Avenue 6851
IRA	Institute of Registered Architects. 68, Gloucester Place, W.1. Welbeck 9966
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1. Sloane 7128
JFRO	Joint Fire Research Organisation (DSIR & Fire Offices' Committee). Fire Research Station, Boreham Wood, Herts. Elstree 1341/1797
LDA	Lead Development Association. 18, Adam Street, W.C.2. Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1. Museum 3891
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1. Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1. Hyde Park 7070
MOH	Ministry of Health. 23, Savile Row, W.1. Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1. Whitehall 4300
MOLNS	Ministry of Labour and National Service, 8, St. James's Square, S.W.1. Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2. Gerrard 6933
MOT	Ministry of Transport, Berkeley Square House, Berkeley Square, W.1. Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1. Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 14 Howick Place, Victoria Street, S.W.1. Victoria 1600 & 6477
NAS	National Association of Shopfitters. 2, Caxton St., S.W.1. Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1. Welbeck 0619
NCBMP	National Council of Building Material Producers, 10, Storey's Gate, S.W.1. Abbey 5111
NEFMAI	National Employers Federation of the Mastic Asphalte Industry. 21, John Adam Street, Adelphi, W.C.2. Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1. Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4. Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1. Whitehall 1693
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1. Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington. Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3. Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1. Trafalgar 6838
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1. Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1. Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1. Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh. Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1. Langham 5533
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1. Whitehall 5322/9245
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1. Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1. Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2. Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1. Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19. Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1. Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1. Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, E.C.3. Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1. Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1. Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1. Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2. Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4. City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1. Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4. City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1. Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1. Grosvenor 6636

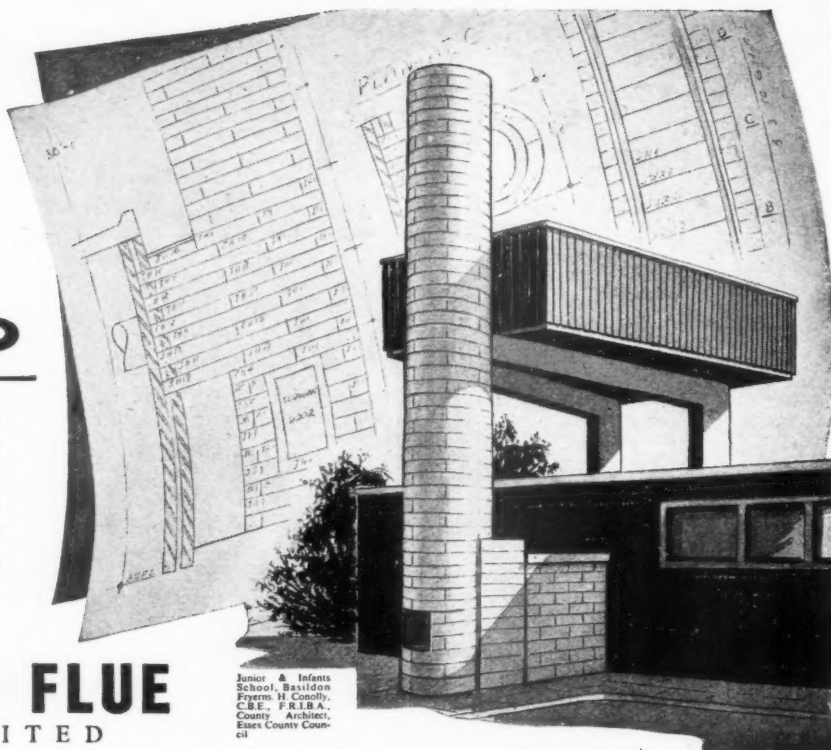
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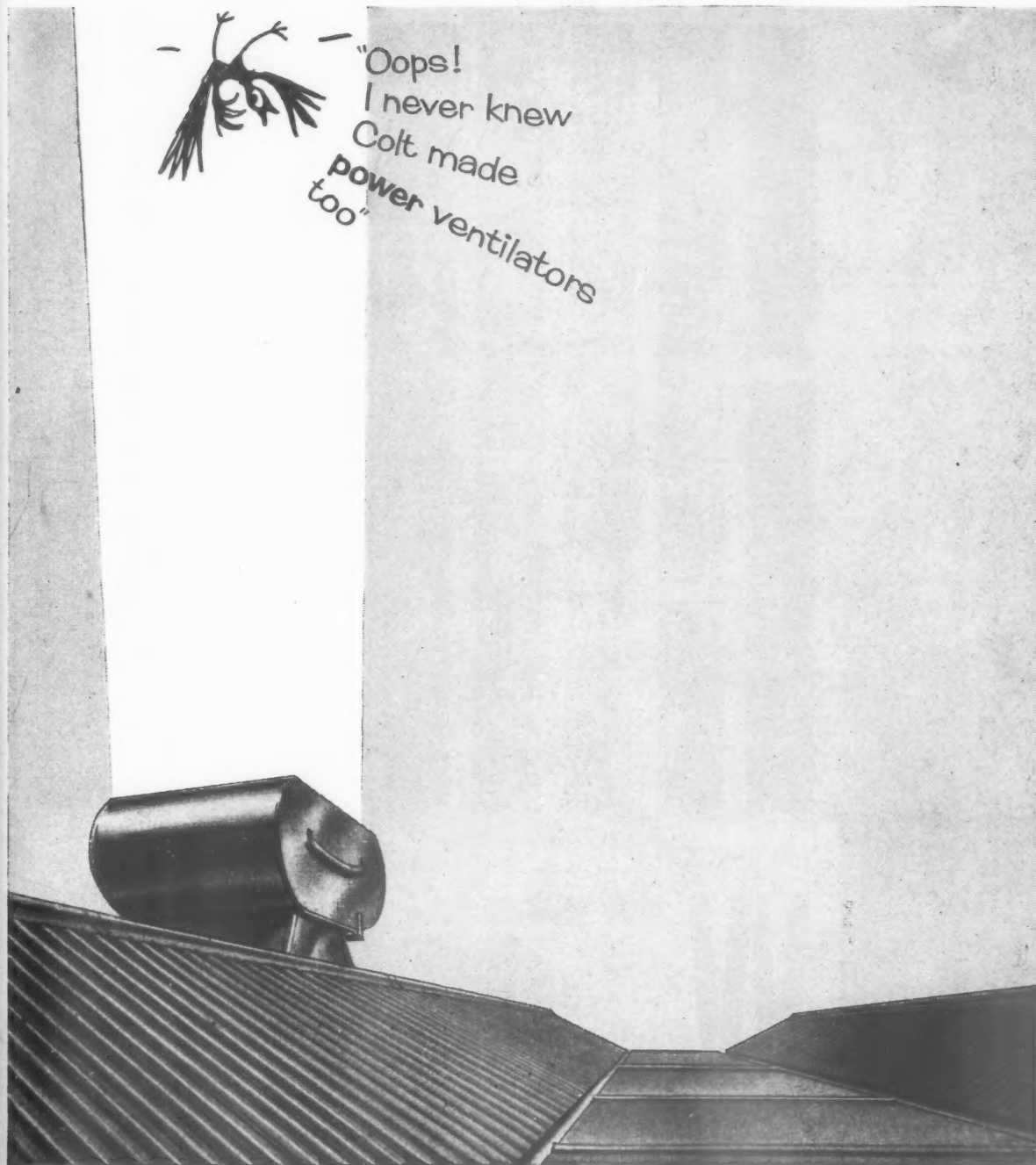
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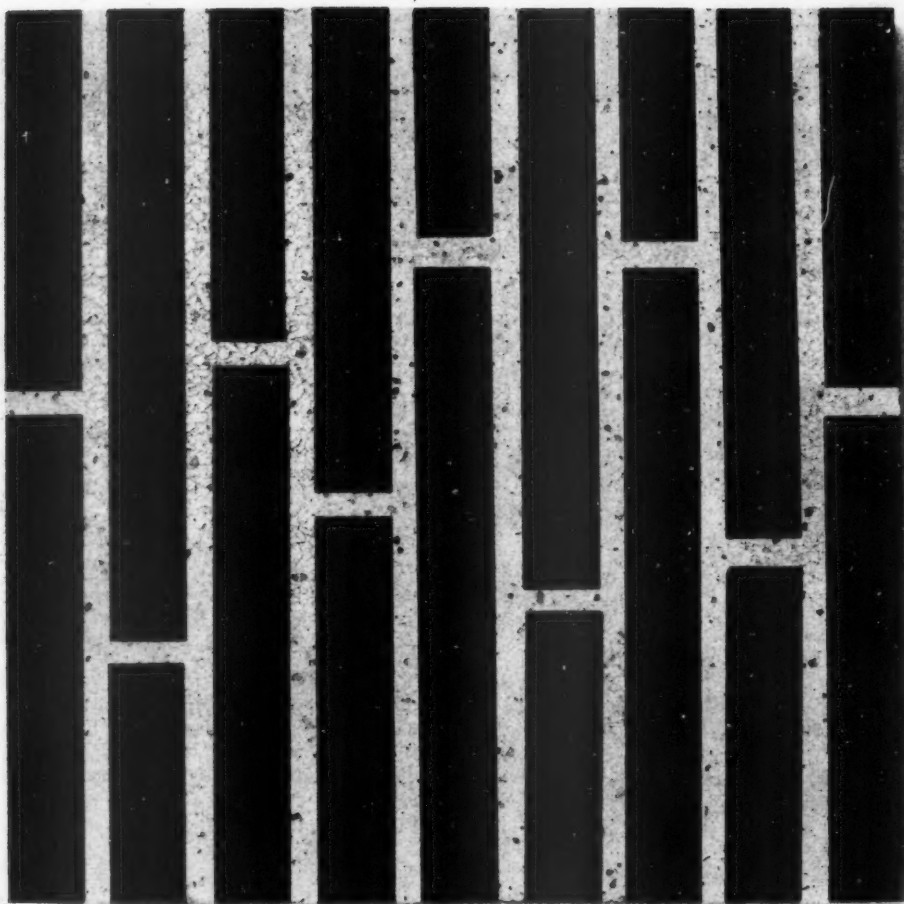
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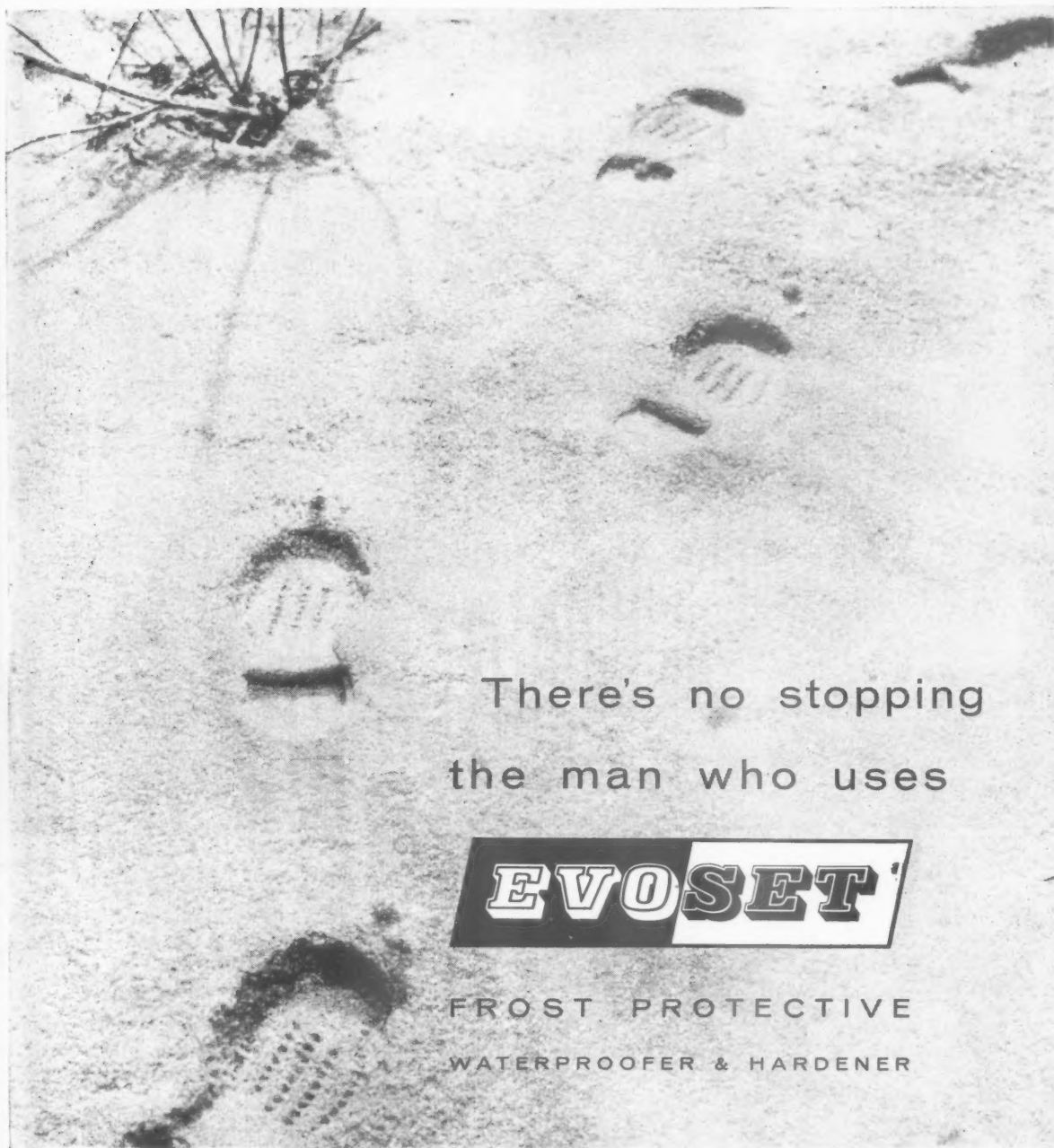
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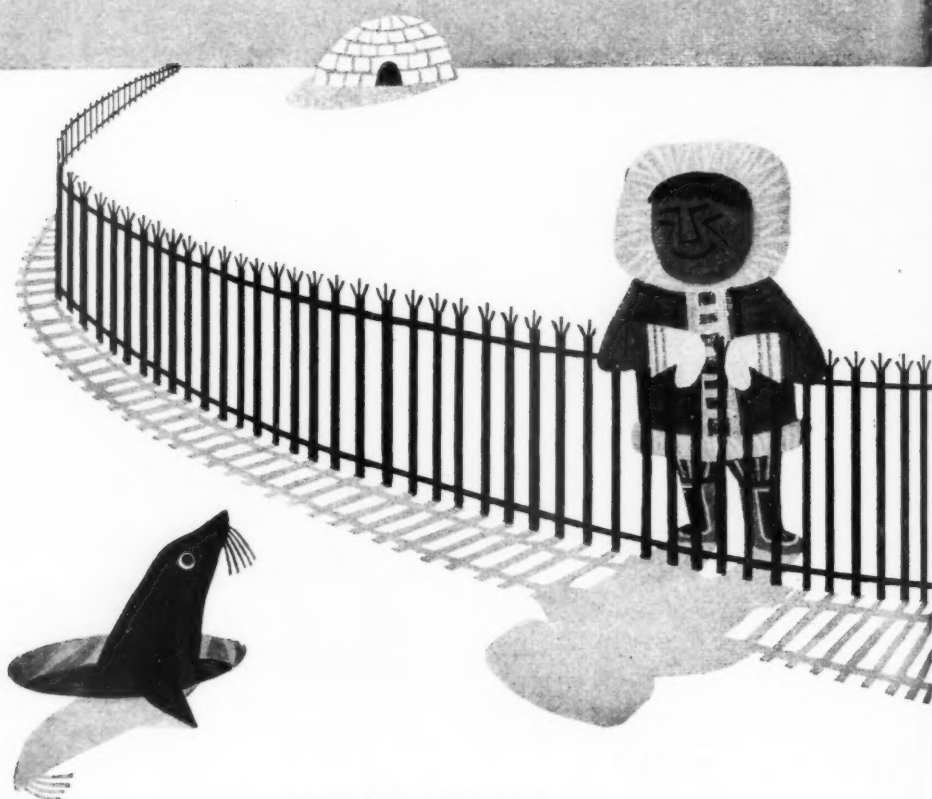
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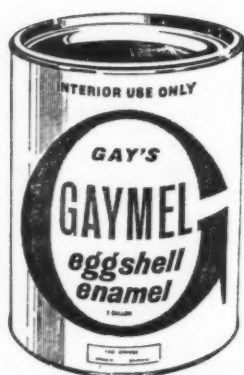


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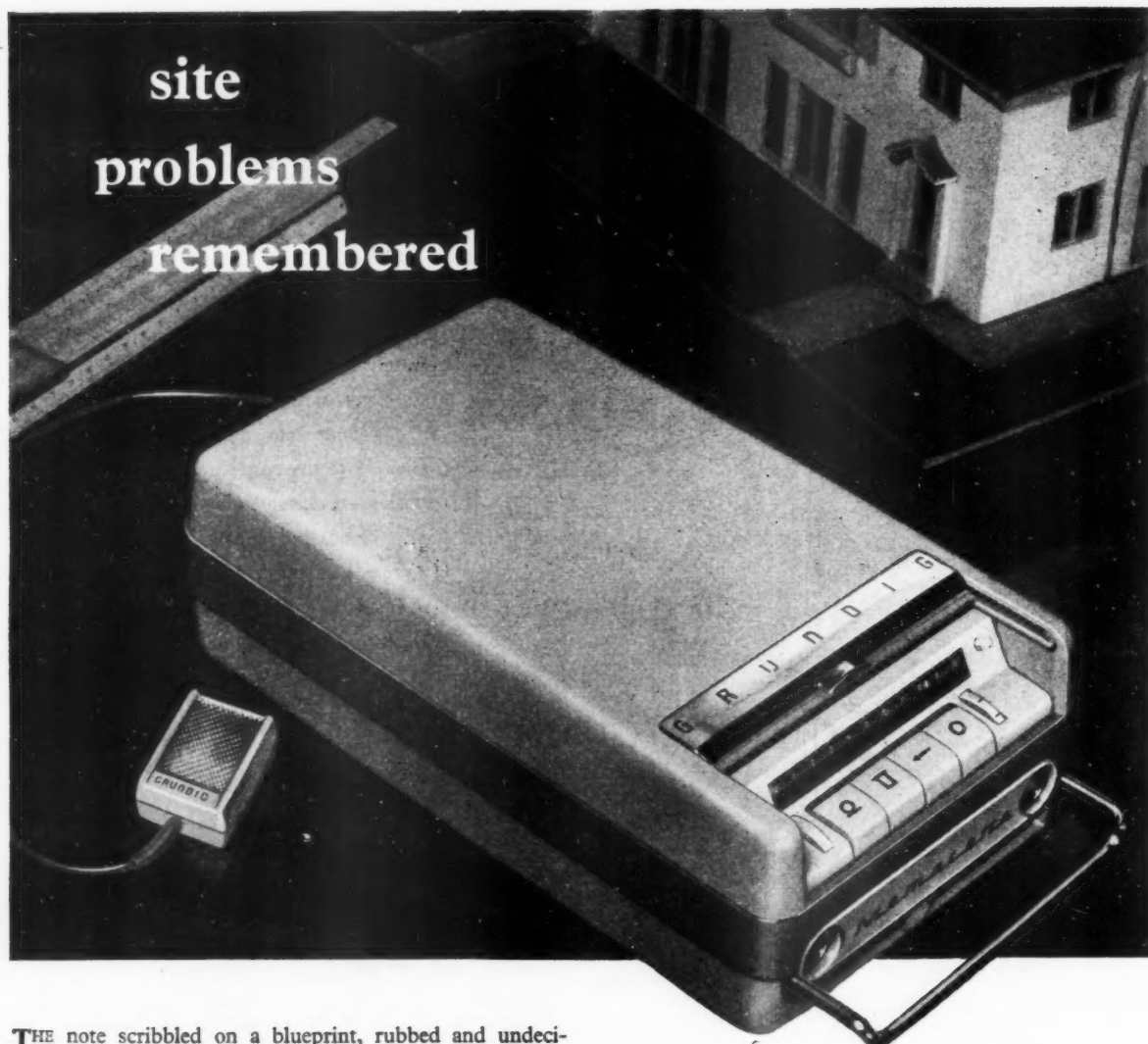
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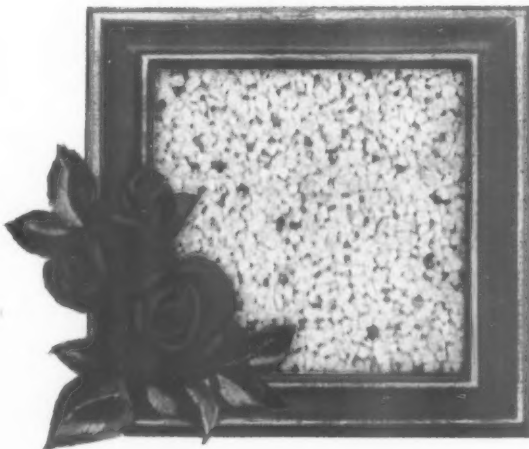
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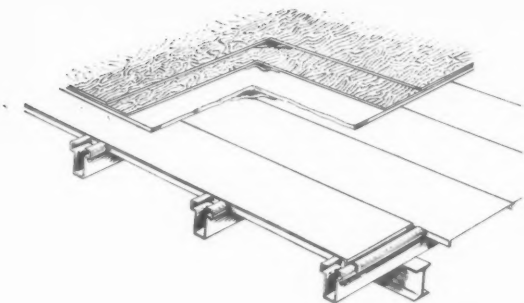
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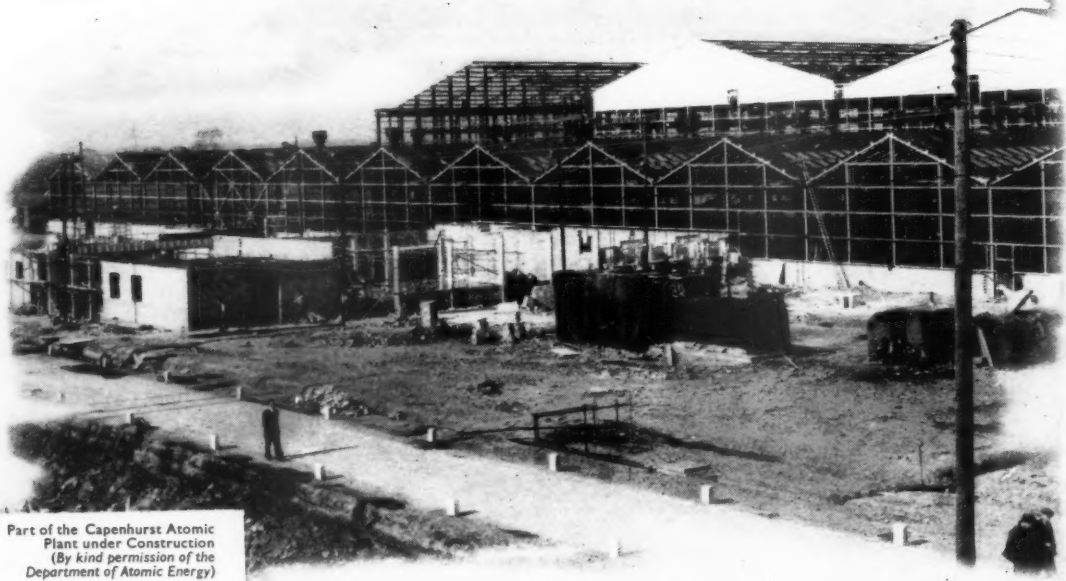


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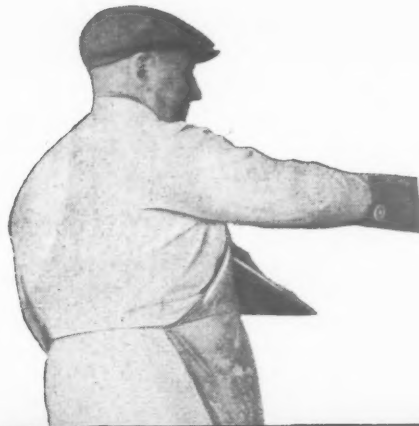
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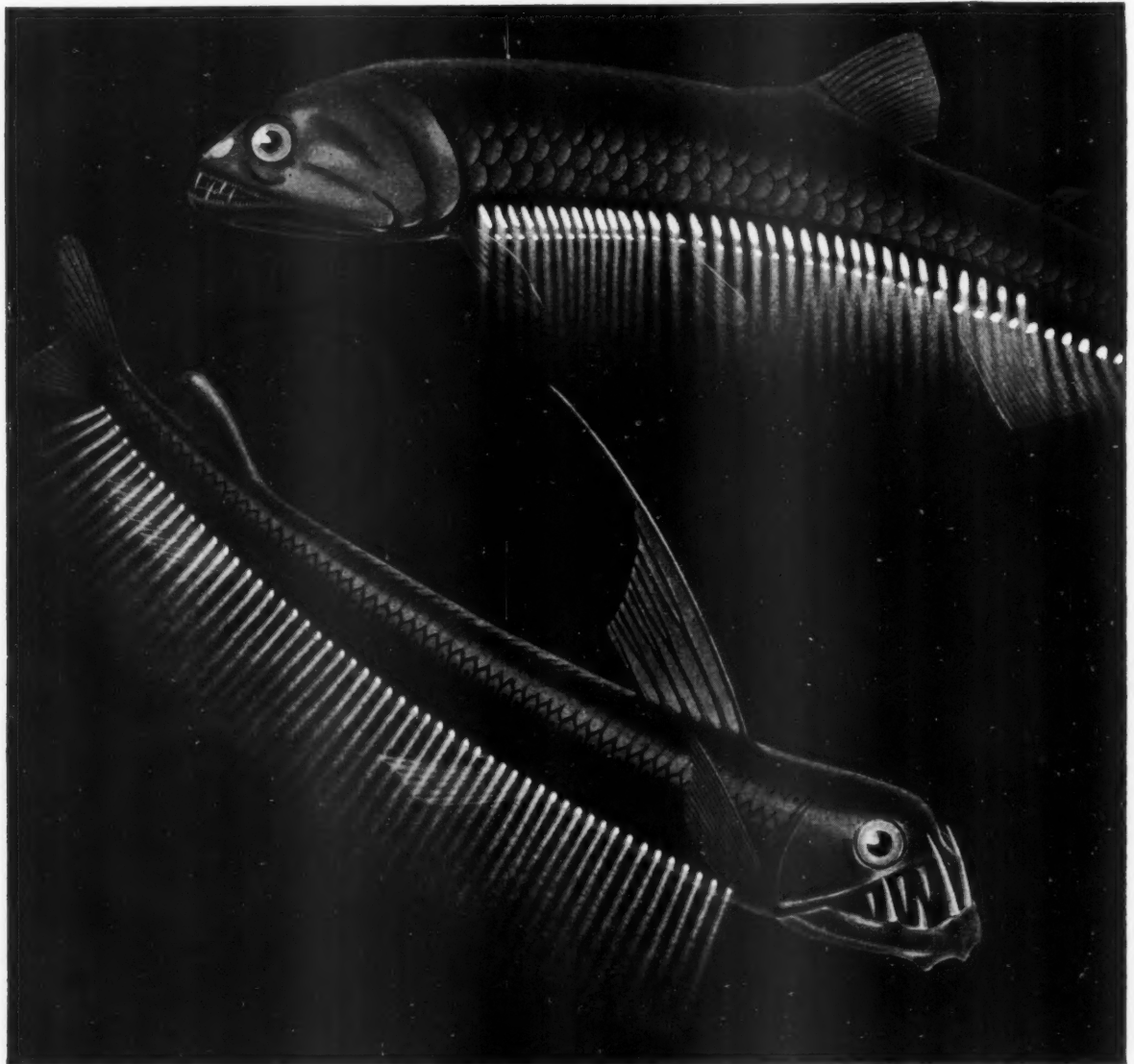
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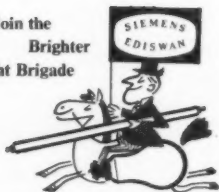
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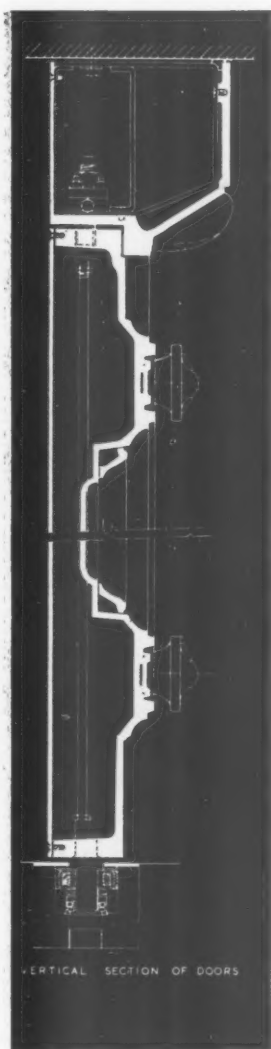
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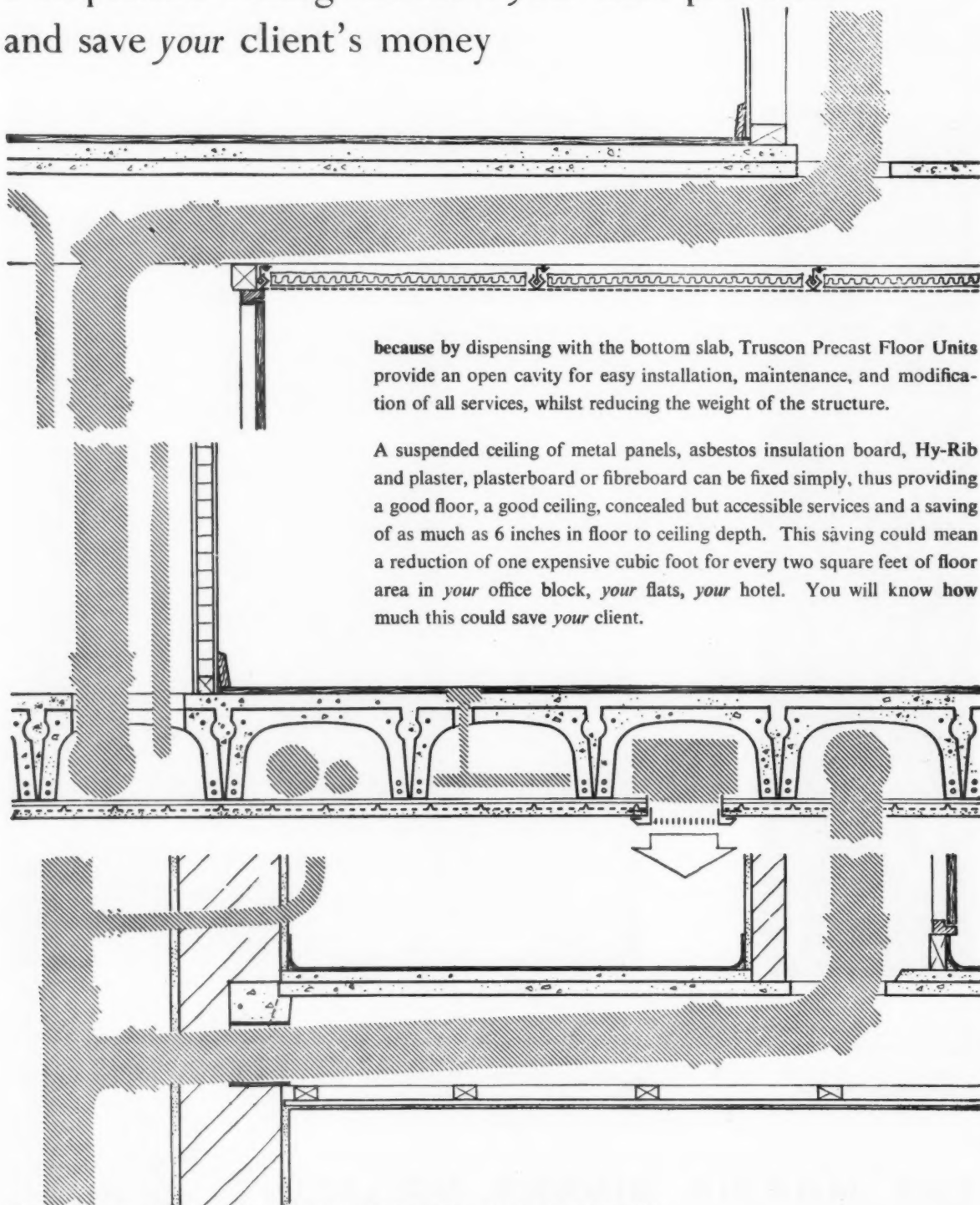
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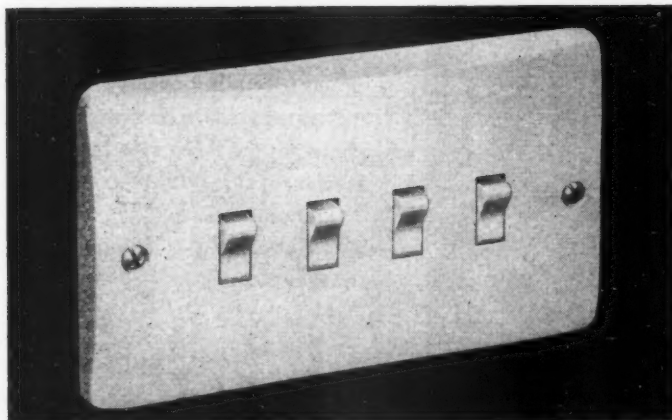
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This new plaster-depth Plateswitch has $4\frac{1}{4}$ " fixing centres and is therefore suitable for mounting in the existing 3-gang boxes.

All the switches are two-way and may be wired either one-way or two-way. Moulded in brown or ivory, overall size $5\frac{3}{4}$ " x $3\frac{3}{8}$ ".

12/6 each Brown

13/- each Ivory

CONVERSION BOXES

This simple and convenient method of mounting flush accessories with $2\frac{1}{8}$ " fixing centres as surface units has been further extended by the introduction of two new designs.

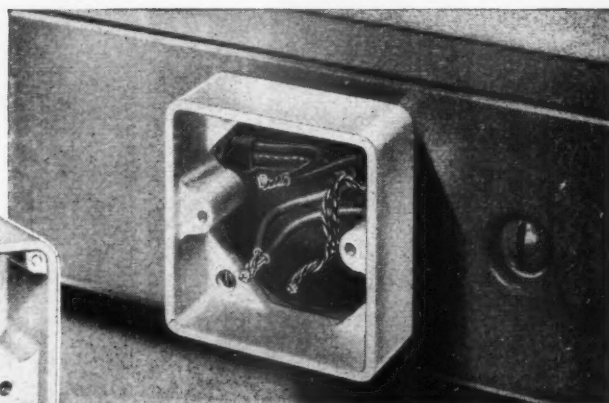
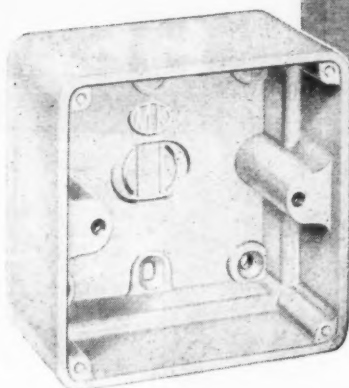
The moulded boxes have 4 BA tapped brass inserts. The two patterns shown have been developed for special purposes and have ample wiring room.

LIST No. 2031

This is a deep moulded box intended for use with DP switched fused spur-boxes.

1/6 each Brown

1/8 each Ivory



LIST No. 2035 (above) Designed for mounting on panels or trunking this moulded box requires only a simple circular cut-out for access at the back. It will accept any MK flush accessory with $2\frac{1}{8}$ " fixing centres.

1/- each Brown **1/2** each Ivory

WE HAVE MOVED TO NEW OFFICES

The new MK administrative block at Shrubby Road is now complete, and this is our new registered office. Please note the change of address.



MK 173 DHB

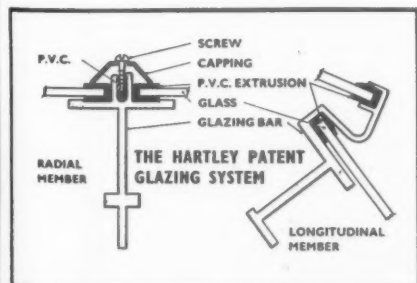
MK ELECTRIC LIMITED · SHRUBBERY ROAD · LONDON N.9 · EDMONTON 5151



Floral Conservatory, for the Rhyl Urban District Council.
212 ft. long x 43 ft. wide x 25 ft. high.

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The Hartley range of glasshouses has been designed to meet the requirements of Parks, Research Establishments, Horticulturalists, Nurserymen and Private Gardeners, and include these outstanding features:—



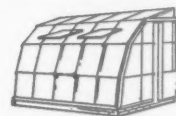
Aluminium alloy construction; new shape with new glazing system to admit far more light; absence of internal supports for unrestricted working space; virtual elimination of breakages—each pane is enclosed on all edges by P.V.C. extrusion and aluminium frame, and so safeguarded against shock, draughts and weather, and against breakages caused by expansion and contraction; stove enamelled structure preventing unsightly surface corrosion.

Full details of the Hartley Range are available on request to

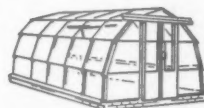
V. & N. HARTLEY LIMITED
GREENFIELD, NR. OLDHAM, LANCASHIRE

Telephone: Saddleworth 444

This is the full range of
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Built to any length.



Hartley "7" 7'3" Wide 7'9" High (Lean-to)



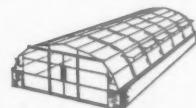
Hartley "10" 10'0" Wide, 7'1" High



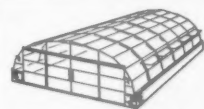
Palm House 38'6" Wide, 18'6" High



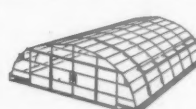
Hartley "14" 13'3" Wide, 8'6" High



Hartley "18" 18'4" Wide, 9'0" High

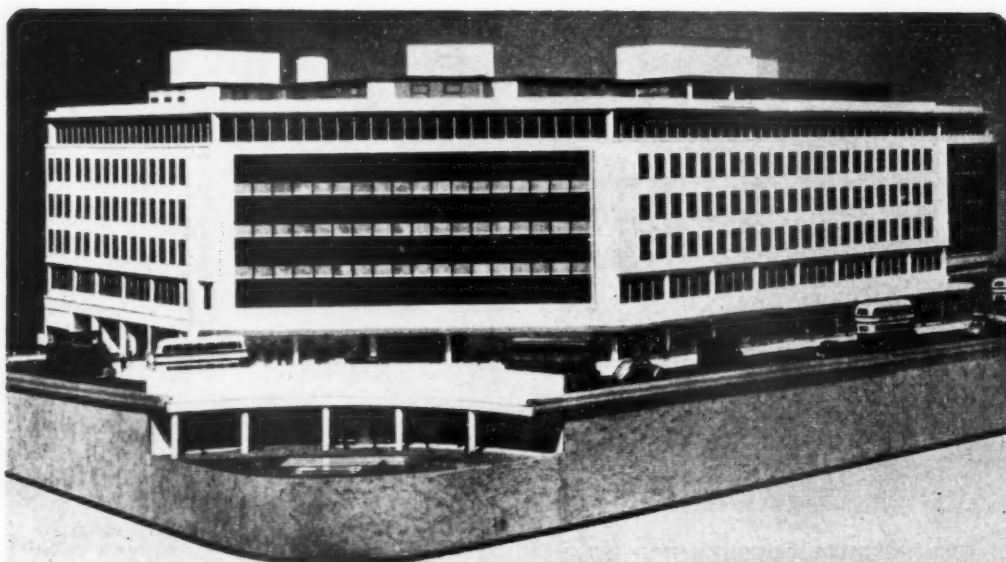


Hartley "21" 21'2" Wide 10'0" High



Hartley "27" 28'1" Wide, 11'9" High

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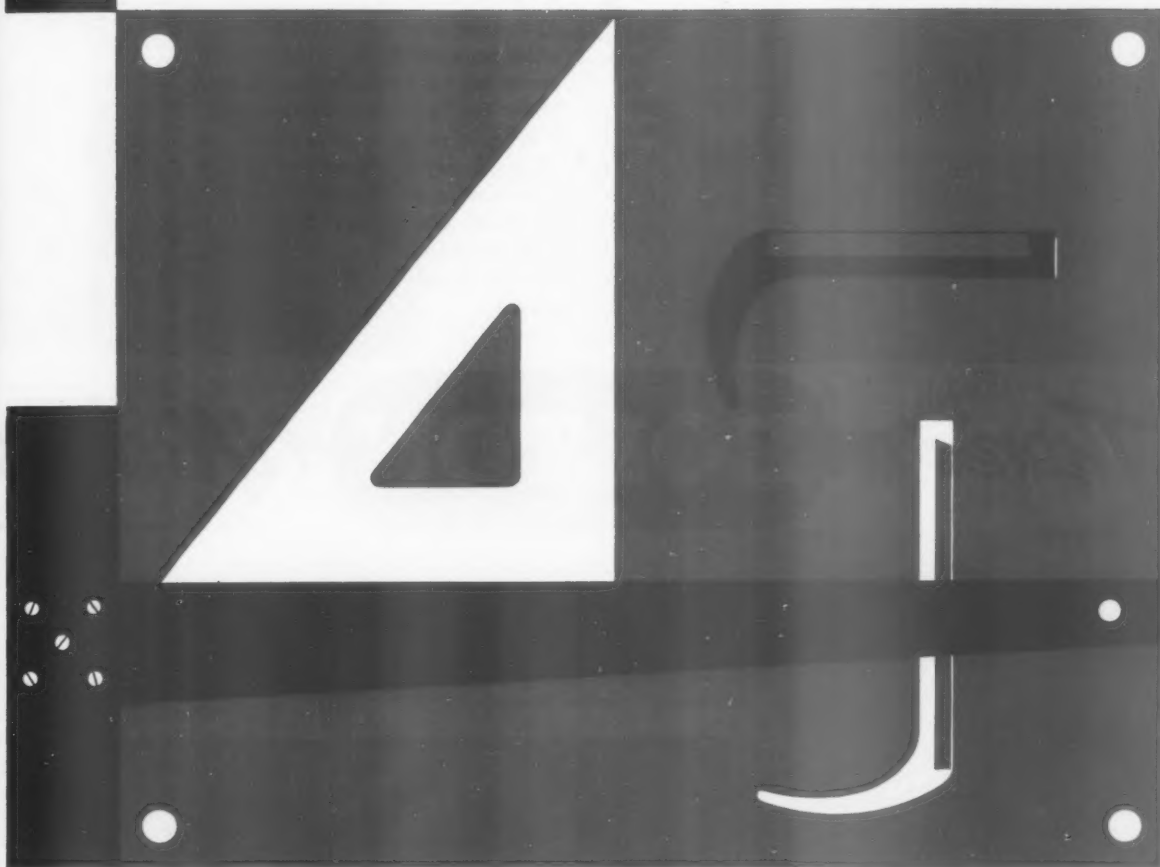
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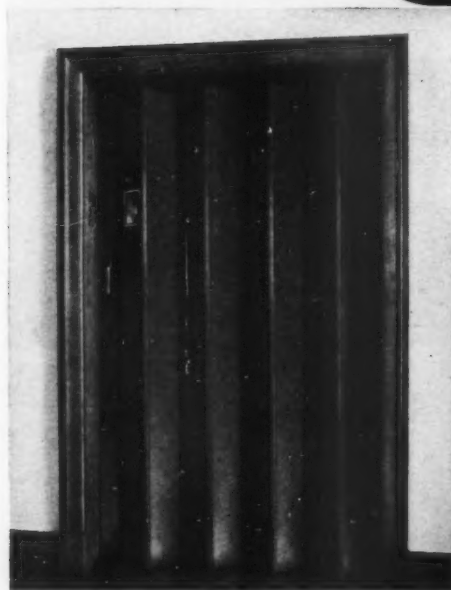


Our latest development...

... for lift cars is the Multi-Panel Sliding Door illustrated left. The door is constructed from Patent Hollow Aluminium Alloy Interlocking Panels which negotiate the 6" radius of the curved top track smoothly and quietly. Whilst the Multi-Panel Sliding Door is designed to run inside or outside the lift car, it may be adapted as a Landing Door running between the lift car and shaft wall. This new door like every other Bolton Lift Door can be arranged to receive lift makers lock beaks and vision panels.

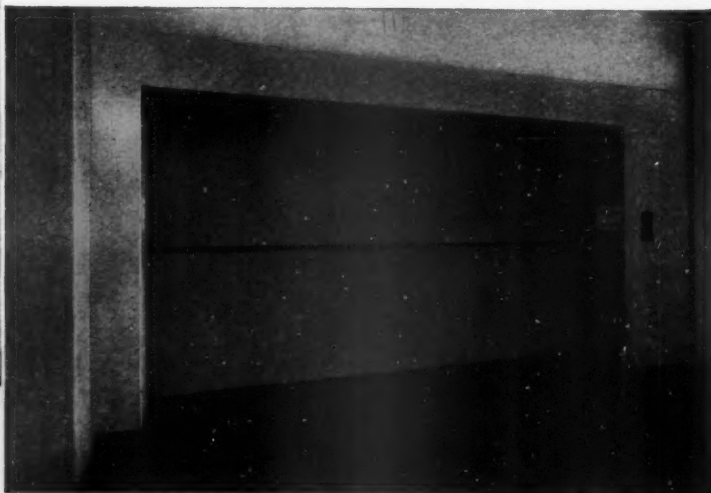


There's a **BOLTON** Lift door... to



Bolton Patent Shutter Doors for lifts, illustrated above, embody all the well-known quality features of the industrial door and are available for hand or power operation.

Vertical Sliding Bi-parting Doors, illustrated below, slide above and below the lift car giving an unrestricted opening ideal for goods lifts. The upper edge of the lower panel can be reinforced to form a truckable cill of equal weight capacity to the lift.

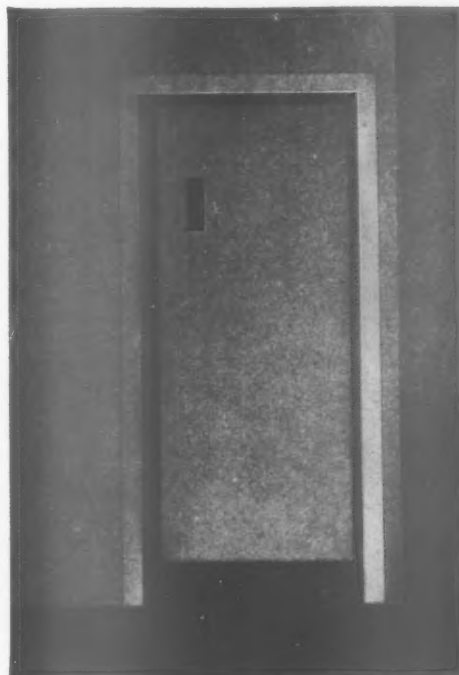


* Write now for the latest Bolton Lift Door Leaflet AJ 317



The power operated 2 Speed Sliding Door, illustrated left, is smooth and silent in operation and is arranged to give maximum clearance. Panels may be flush or of fluted aluminium alloy.

The power operated Single Panel Sliding Door, illustrated right, glides smoothly and quietly behind the wall allowing an unrestricted opening. Flush or alternatively fluted panels of aluminium alloy are available.



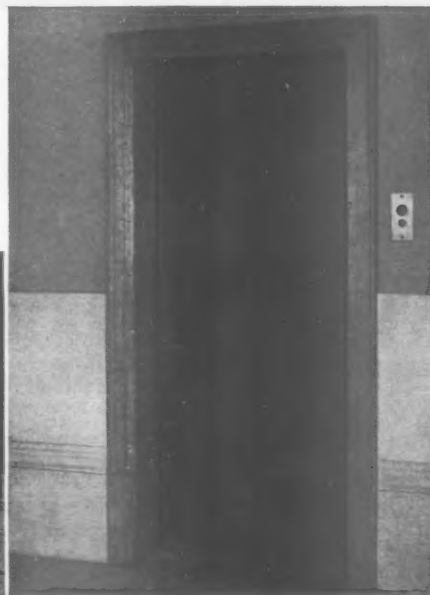
... to suit your requirements

The comprehensive range of Bolton Lift Doors includes doors which are suitable for every situation, from factory goods lifts to the most modern hotel lift. The variety of finishes available is such that harmony with existing decorations can readily be achieved. All Bolton Lift Doors can be fitted with vision panels to your requirements and can be arranged to receive lift makers' lock beaks, handles, etc.



The Multi-leaf Door, illustrated right, is among the most popular of lift doors and is available in a variety of finishes.

The 2 Panel Centre Opening Doors, illustrated right, are supplied with a sympathetic action gear and slide smoothly and quietly behind the wall allowing maximum clearance. A variety of finishes is available.



BOLTON

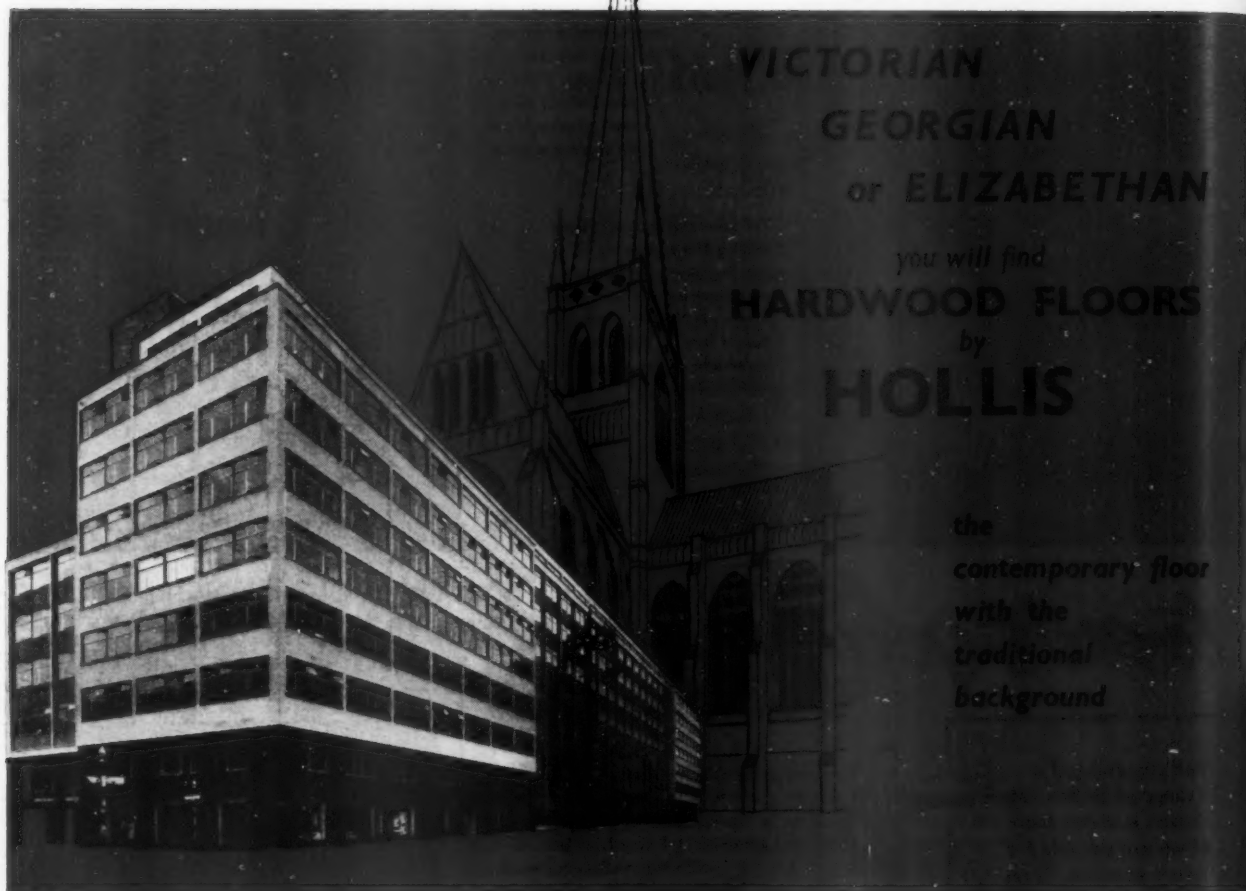
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and is by courtesy of the Architect, C. H. Elsom, F.R.I.B.A.

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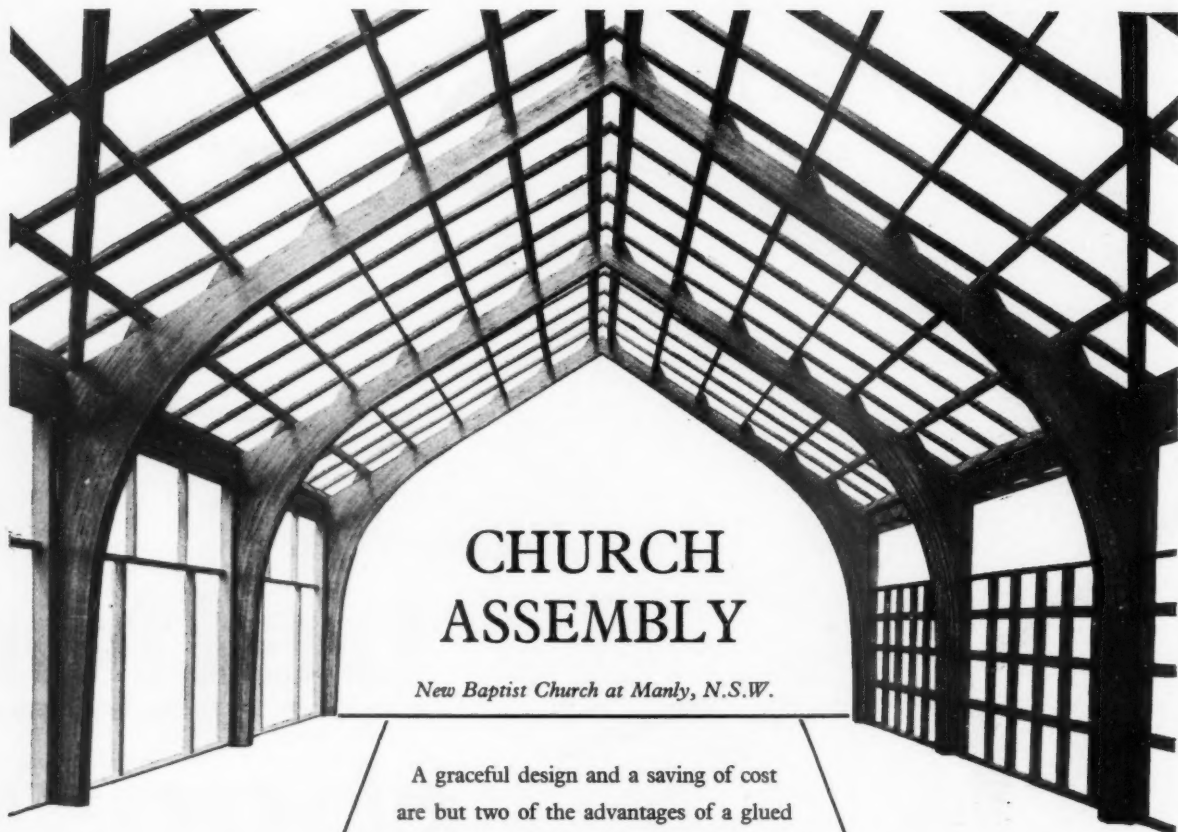
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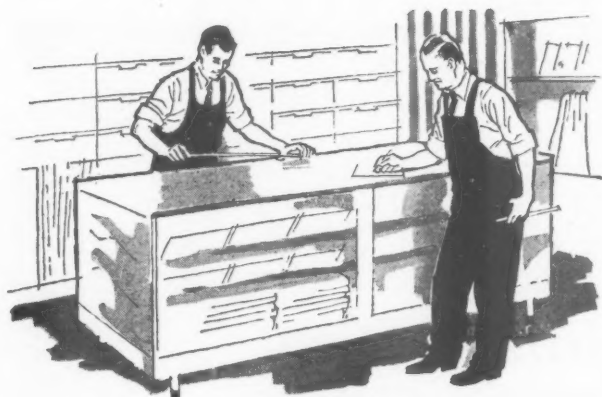
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AP 457

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HARDEC — the balanced[★] board
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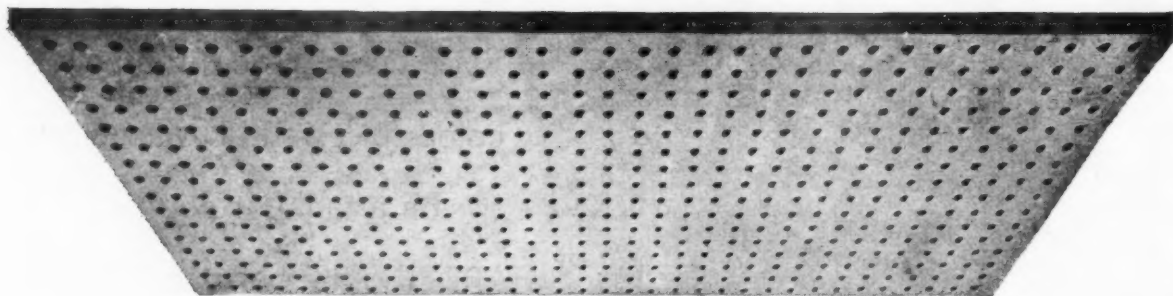
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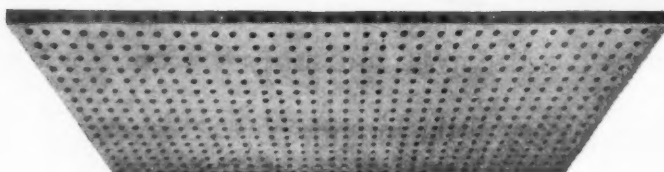
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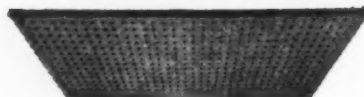
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level



Newalls (Reg'd Brand) PAXBOARD presents the architect with a first-class medium for large-area acoustic insulation.

The modern tendency to use large rooms in office blocks results in an artificially increased noise level due to numbers of people working together, and makes acoustic treatment more essential than it would otherwise be. Similarly in factories, the provision of a sound-absorbent ceiling which reduces noise, and simultaneously insulates heat more effectively than any building board, is an attractive proposition, particularly in view of the reasonable cost for an all-asbestos product.

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'Rose Hall', Dunbartonshire, is the home of Mr. W. B. Gardner Henderson. However severe the weather, 'Rose Hall' is always beautifully warm—oil fired heating was chosen to make sure of that. Fuel for the oil fired system is supplied by Scottish Oils and Shell-Mex Ltd., through their local Authorised Distributor. **ARCHITECT:** Baron Bercott, B.Arch. Dip. C.D., A.R.I.B.A., A.M.T.P.I.

Modern throughout— Rose Hall, Dunbartonshire has oil fired heating

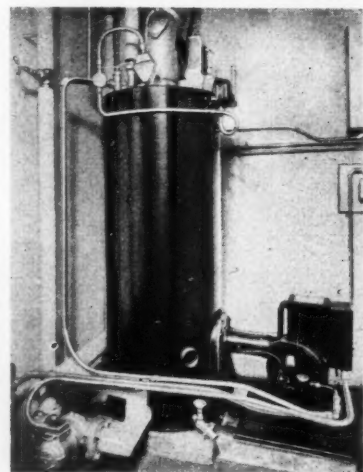
'ROSE HALL' gives its owner, Mr. W. B. Gardner Henderson, a glorious view of the Firth of Clyde. And plate glass windows have been fitted to ensure that there is no distortion of this magnificent view. The house owes its name to one of Mr. Gardner Henderson's main hobbies, the cultivation of roses. Modern in every possible way, 'Rose Hall' is kept warm and clean by the most modern of all heating systems. It has oil fired heating.

Oil firing in this house provides warmth efficiently and with no trouble at all. Room temperatures are controlled automatically. And the same boiler (see small illustration) supplies all the domestic hot water. During the summer the central heating can be turned off, still leaving the hot water supply in operation. With oil there is, of course, no stoking—instead the oil is gravity fed from storage tank to boiler.

Oil is a clean fuel. When it is supplied by a Shell-Mex and B.P. Authorised Distributor it is supplied promptly. Bought in bulk, oil is a surprisingly economical fuel. Running costs for oil fired automatic heating are normally very low in comparison with those of other fuels doing the same job.

Oil firing is suitable for nearly all homes, regardless of size or age. It is ideal for full central heating, partial central heating, or for hot water supply only. There are two grades of fuel oil for domestic heating, Shell Domestic Fuel Oil which is correct for the 'pressure-jet' type boilers and BP Domesticol for the 'vaporising' type units.

If you are interested in the construction, design or modification of any house or public building and would like to know more about the costs and practical application of fuel oil, please write to Shell-Mex and B.P. Ltd., Sales Promotion Dept. AJ.26, Shell-Mex House, Strand, London, W.C.2.



As well as supplying heat for the house's complete central heating system, this boiler provides ample domestic hot water all year round.



Specify **NEWMAN'S Window opening gear**



Buildings of today...

The Girls Grammar School, Stratford on Avon, is a fine example of contemporary architecture, blending with an existing traditional building. This can be seen on the interior view, where another point worthy of note is the neat and unobtrusive appearance of Newman's Window Opening Gear.

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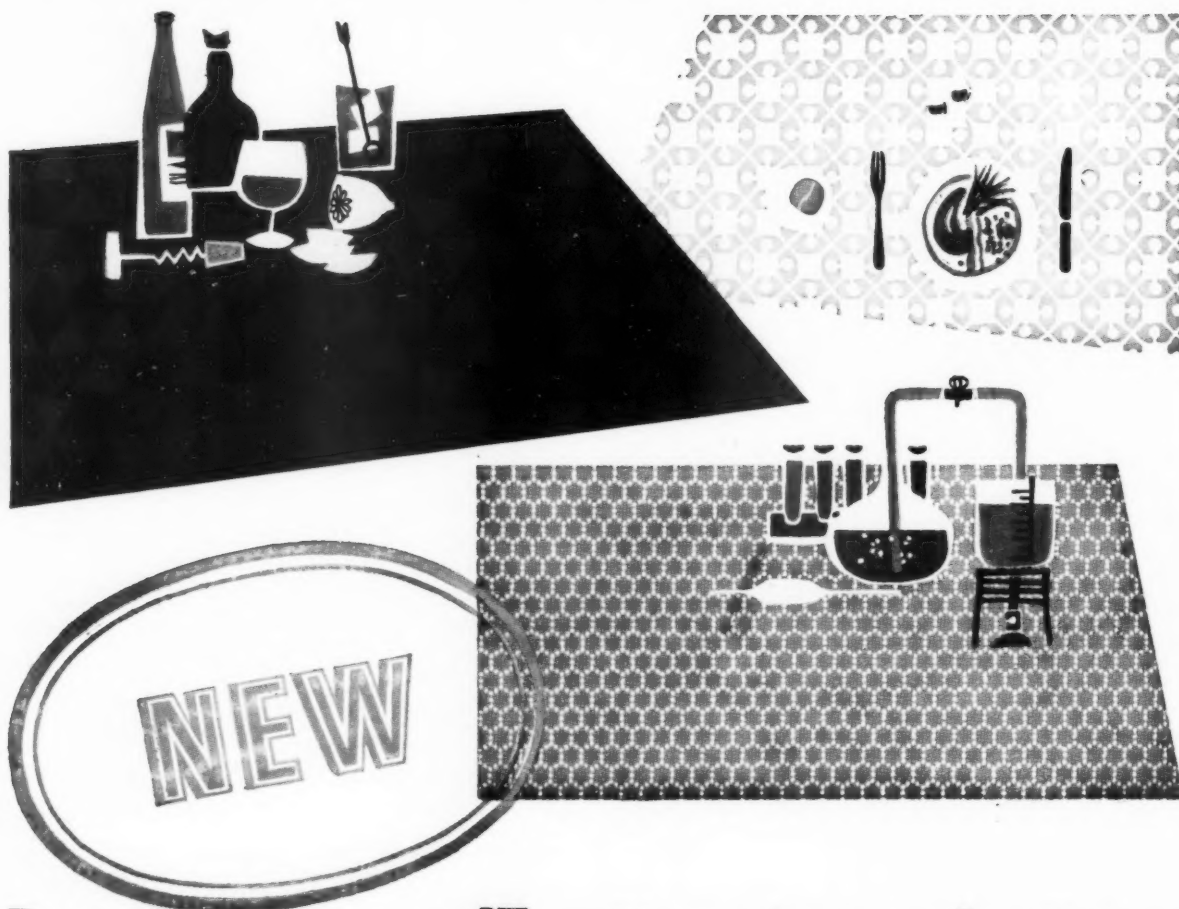
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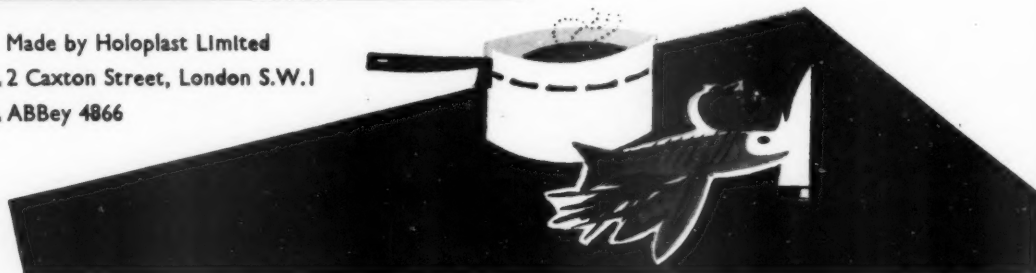
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....the **Kalorite** circulator

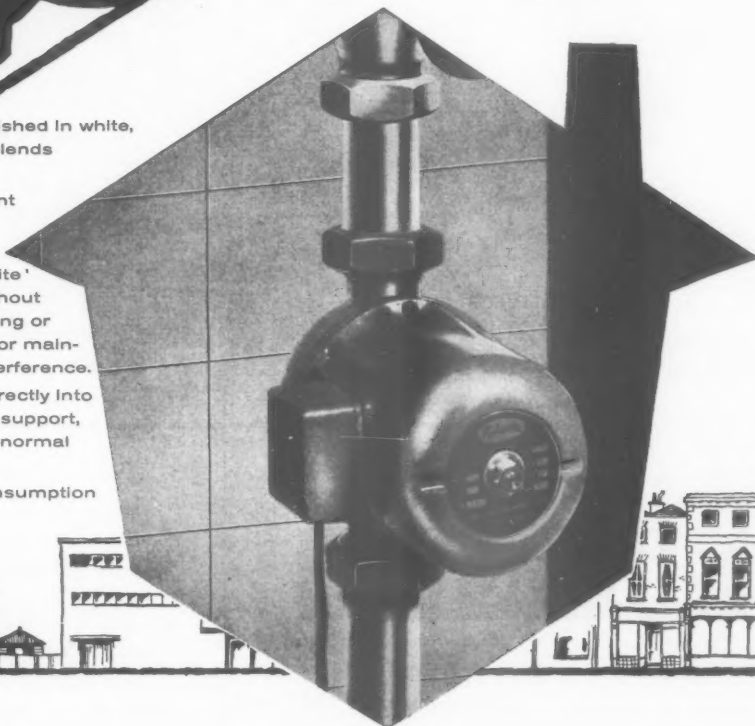


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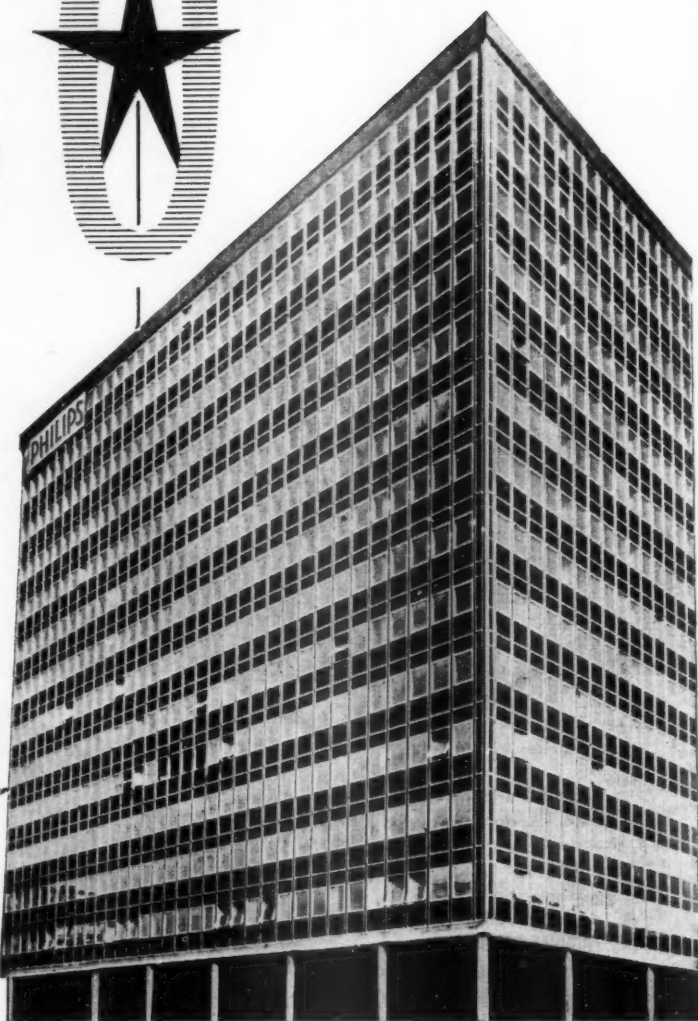
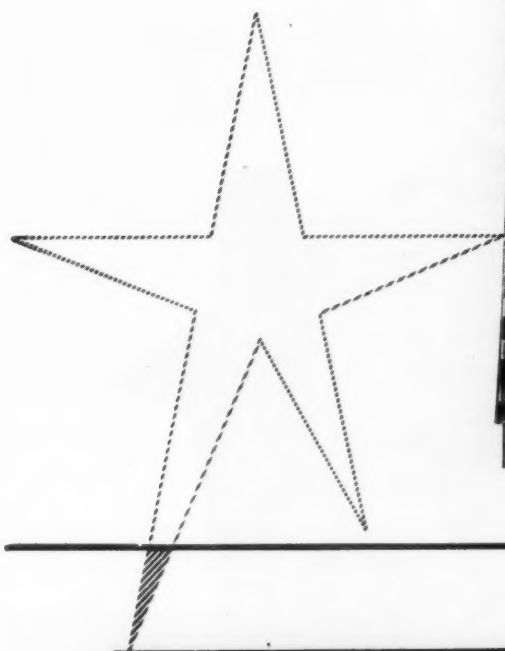
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P.2913

1360

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Architect : F. S. Platou

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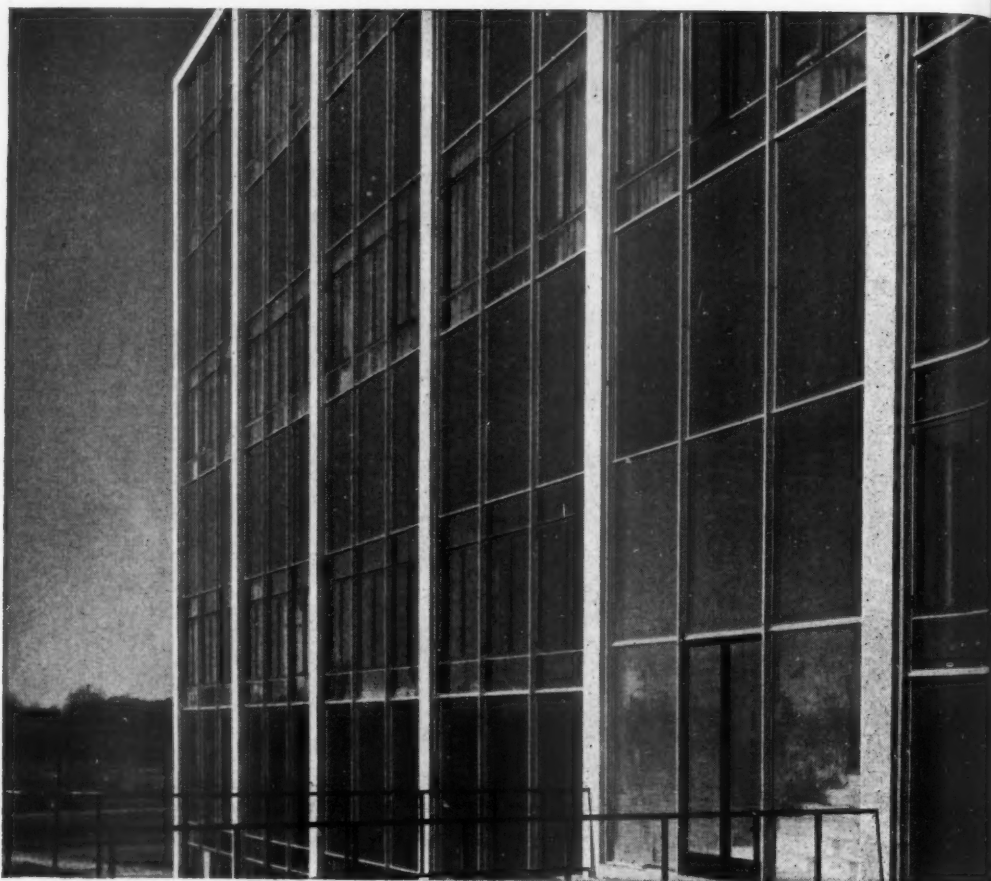
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Neat, practical, economical answer to many problems of lining, proofing and insulation, IBECO has advantages no other product of its kind can offer . . . In IBECO the proofing is part of the paper itself, integrated with the paper's fibres while these are still fluid. Result: A paper waterproofed *throughout its substance*, with no 'free' bitumen to harden, crack, leak or sweat out. You can fold IBECO, crease it, trample it—it stays waterproof. Additionally, it's light in weight, small in bulk, easy to transport and handle on site, and very reasonable in price... Where there's building, there's a job for IBECO.

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ALCAN
ALUMINIUM

Lighter, stronger, and more quickly erected than conventional wall structures, the curtain walling and windows of today and tomorrow made of ALCAN aluminium are better than ever before. In its natural clean finish, or colourfully anodised, aluminium presents no problems of rust or decay, and lessens the cost of maintenance.

This view of the Science Building of the Carleton University in Canada shows clearly the aluminium curtain wall produced by THE CRITTALL MANUFACTURING CO. LTD. Architects: Watson Balharrie, Hart Massey, John Bland, Campbell Merrett (architectural associates for Carleton University).



To the a

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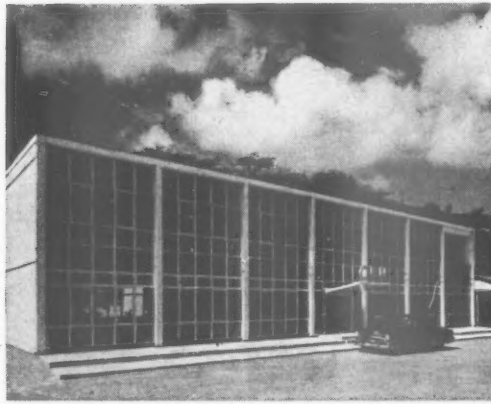
A typical exa
from extrusion f
walling.

ALCAN

To the architect and designer

ALCAN aluminium means:

- Freedom to create with no raw material limitations
- An opportunity to demand hollow or solid sections to conform with the most intricate designs
- Thinner, lighter, permanent walls, with a wide range of architectural expression
- Speedy erection



CRITTALL "Fenestra" aluminium curtain walling was used for the new office building of Combinatie Pletterij Nederhorst in Curaçao. Architect: Ben Smit, B.N.A.

To the building owner or occupier

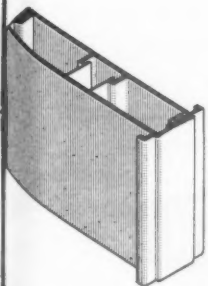
ALCAN aluminium means:

- More floor space due to thinner wall construction
- Lower fuel costs through more efficient insulation
- Light weight—cutting erection time and foundation costs
- No unsightly rusting or flaking, no painting necessary—and therefore lower maintenance costs throughout the life of the building



Another CRITTALL aluminium curtain walling installation at the new Slough factory for Coopers Mechanical Joints Ltd. Architects: Herbert J. Stribling

The advantages of aluminium are at their greatest with ALCAN aluminium. ALCAN, one of the world's largest producers, are specialists in the ingot field. To manufacturers, ALCAN specialisation means a constant, reliable source of aluminium in alloy forms exactly - consistently - suited to precise needs.



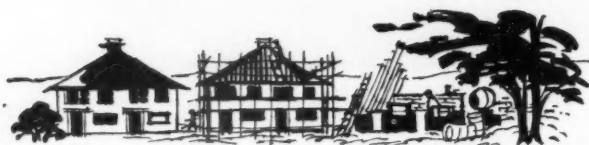
A typical example of aluminium extrusion for use in curtain walling.

To architects and designers ALCAN specialisation makes available a vast store of technical knowledge and experience ready to be applied to any project, backed up by years of fabricating technique. To the user of every aluminium product ALCAN specialisation means a certainty of quality and the best value that money can buy.

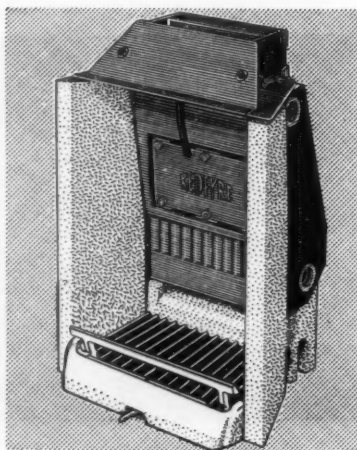


The front of the new warehouse for Baker, Baker & Co. (Wholesale) Ltd. showing the aluminium curtain walling made by the CRITTALL MANUFACTURING CO. LTD. Architects: Eustace Button & Partner

There's nothing to touch a Redfyre Bacboiler for successful low-cost water heating



Redfyre 60



Hearth Redfyre

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N132



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Electric floor warming at the Sighthill Health Centre

Fully controlled warmth

Loadings

A variety of floor finishes tested

Results

Sighthill was designed as an Experimental Centre under the National Health Service Act. The building forms a hollow square round a central courtyard. The north wing holds administrative departments on the ground floor and dental theatres on the first floor. The south wing houses the joint services departments. The east wing comprises child welfare services and the west wing is divided into six medical suites.

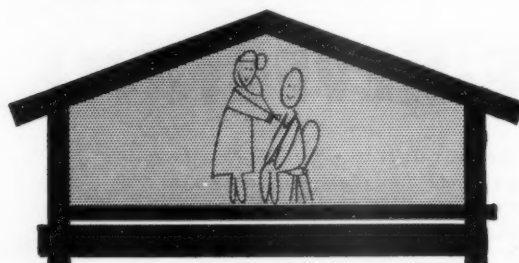
The building is heated by electric low temperature underfloor radiant heating. This is thermostatically controlled and designed to maintain against an outside temperature of 25°F. the following inside temperatures: surgeries, recovery and X-ray rooms 70°F.; passages and lavatories 60°F.; kitchen 52°F.; other rooms 65°F. Electrical intake is "off peak" and available between 7 p.m. and 7 a.m., and 11 a.m. and 3 p.m.

Total loading amounts to 262 kW and is designed for off-peak operation. This load comprises 232 kW embedded in the concrete floors and 30 kW in concealed wall panels. The total floor area of the building is 35,000 sq. ft.

Floor finishes laid were: wood block, cork tile, thermoplastic, mastic asphalt, Caithness stone slabs and terrazzo. All these have given very satisfactory service under heated floor conditions.

The installation has been running for over five years and the average annual consumption for floor warming purposes is 418,960 units costing £1,400.

Thermograph records were taken during the winter 1955/56. These show that when, in February 1956, the mean daily outside temperature was 22.6°F., the maximum drop in inside temperature during the cut-off period was only 2.6°F. Even under these extreme conditions the internal air temperature did not fall below 60°F.



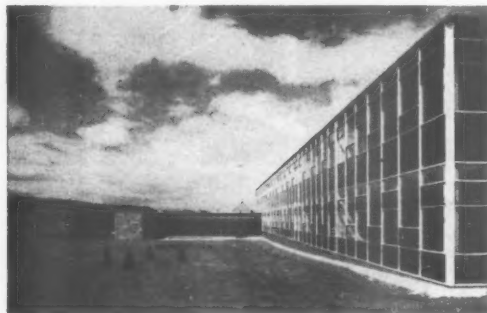
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Framing Manufacturers: Standard Maclean Ltd., Hamilton. Contractors: Stuart Construction Ltd., Glasgow.*



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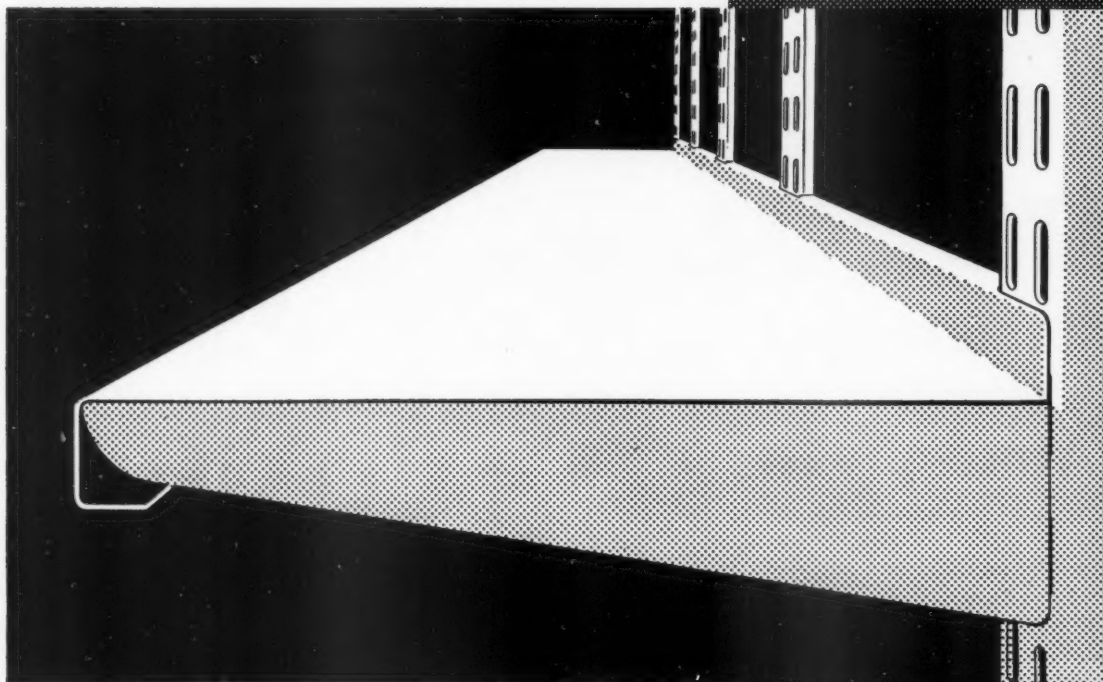
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P.3755

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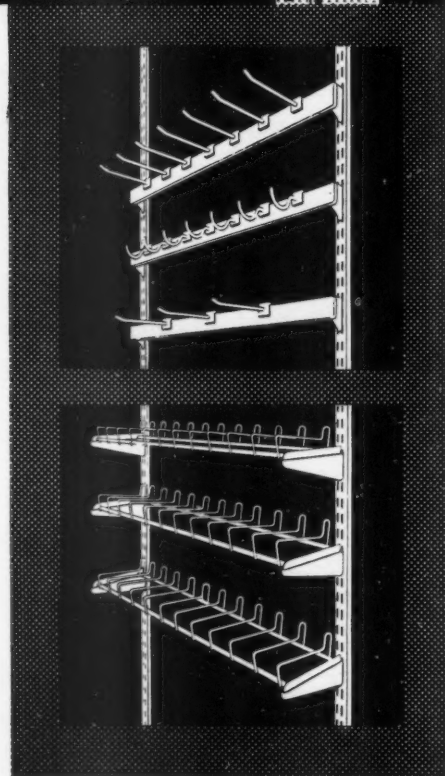
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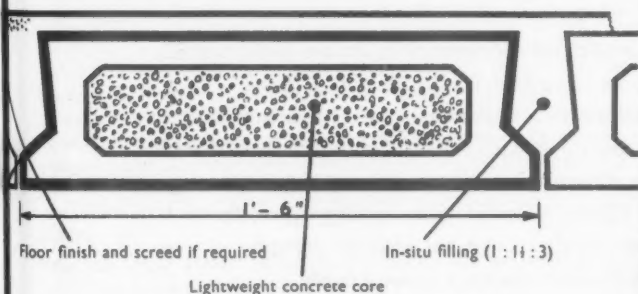


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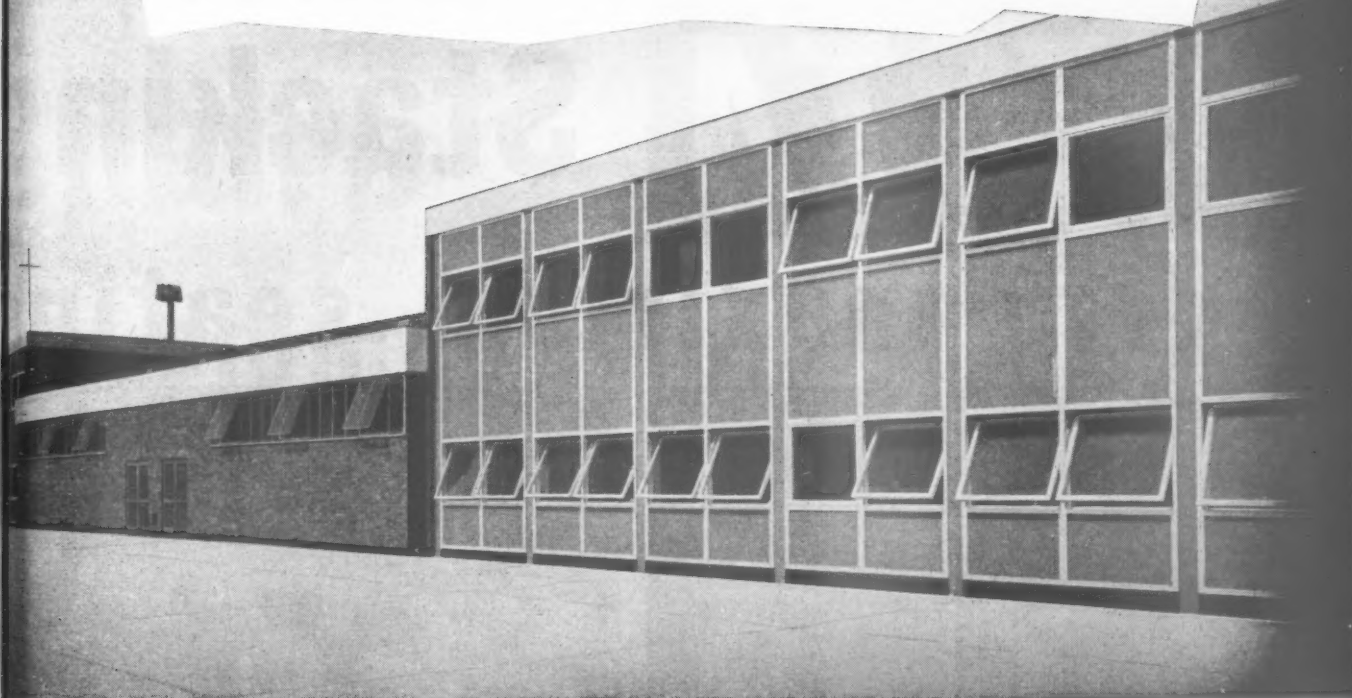
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FOR
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TOMO double-glazing at London Airport



We think you'll agree that the appearance of these attractive offices at London Airport is enhanced by their TOMO double-glazed WINDOWS. But that's only a small part of the story. TOMO double-glazing also offers excellent thermal-efficiency values, remarkable sound-reduction properties, finely-controlled ventilation and total indoor window-cleaning.

On the subject of thermal efficiency, we should like to refer you to the report of a recent B.R.S. test quoted on the right. It speaks volumes.

When you work within whistling distance of aircraft, sound reduction becomes a matter of vital importance. Here TOMO WINDOWS score heavily. The total reduction in sound level depends finally, of course, on the thickness of glass employed and the space between panes. Using 32-ounce glass spaced at 1½ in., TOMO double-glazing gives a reduction of approximately 40 decibels and will, we hope, save Shell-Mex and Esso personnel not a few headaches in the future.

One last point, TOMO double-glazed WINDOWS are suitable for inward or outward opening and can be top-hung, bottom-hung, side-hung or pivot-hung. Any further information you may require will be gladly supplied.

Administrative and operations office for aviation fuel supplies at London Airport, half of which are occupied by Shell-Mex & B.P. Ltd. and the other by Esso Petroleum Co. Ltd. Architect: Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.


BUILDING RESEARCH STATION TESTS

When a standard-production TOMO WINDOW Wall-Unit (8ft. by 8ft.) was tested at the Building Research Station, Garston, the mean thermal transmittance of the complete unit was found to be 0·31 B.Th.U./sq.ft./h.°F. This is equal to the thermal transmittance of a traditional 11in. cavity brick wall! This impressive result was further improved to 0·29 when the TOMO pleated blinds, fitted between the panes, were lowered.*

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**FOR UTMOST EFFICIENCY
IN THERMAL INSULATION
AND SOUND REDUCTION—**

SPECIFY

TOMO
DOUBLE  GLAZED
WINDOWS

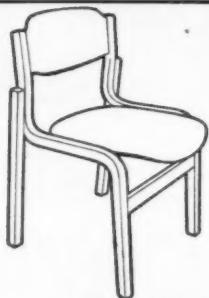
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to Architect's size, style and finish**

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TECTA

Stacking

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AND STACK 20 HIGH TO GIVE THE
MAXIMUM OPEN FLOOR SPACE

LAMINATED FOR STRENGTH

Built on laminated frames made of layer upon layer of beech bonded together under pressure, Tecta Stacking Chairs have less joints — a chair's weakest points — therefore more strength. Designed to stand up to the most robust handling, the lamination process brings absolute protection against warp, dry rot or insect attack.

LIGHTWEIGHT FOR EASY STACKING

Tecta's laminated construction means no wasted weight. Easy-to-move Tecta chairs can be stacked 20 high.

STYLED FOR COMFORT

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Seven different styles of Tecta chairs are illustrated below, many of them approved by the Council of Industrial Design. They can be ordered in any quantity; and battening, bookrests and other accessories are available as extras. In mahogany, oak, walnut, elm or beech with a choice of seat and back veneers.



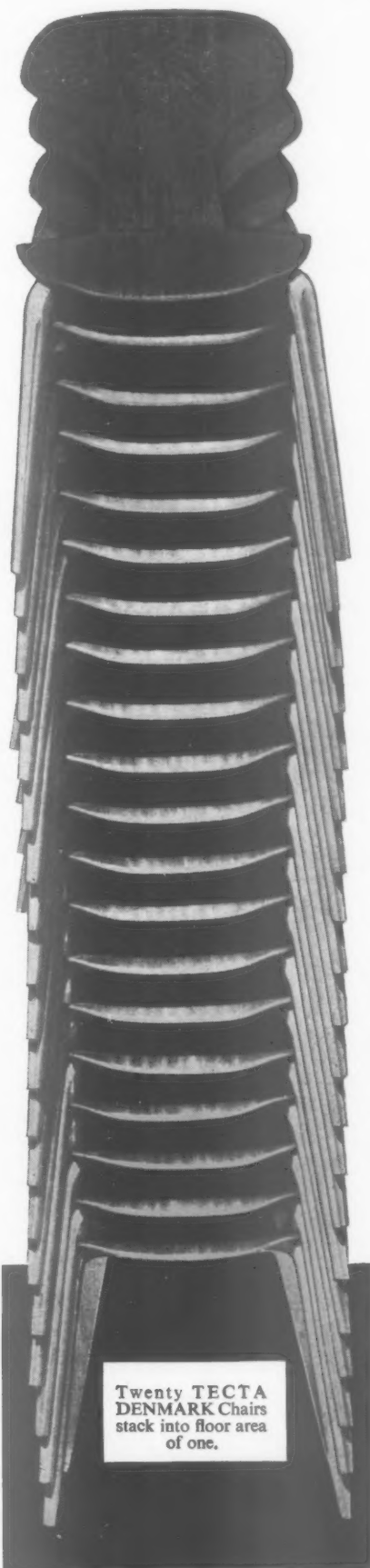
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THE FOYER



THE SAVOY



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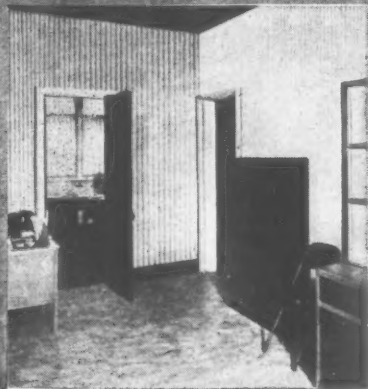


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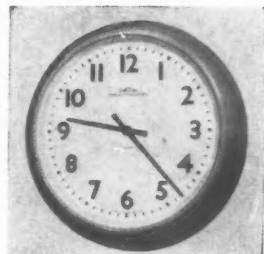
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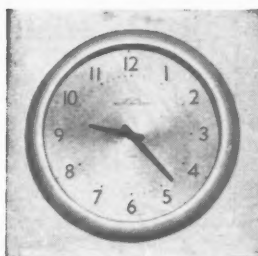
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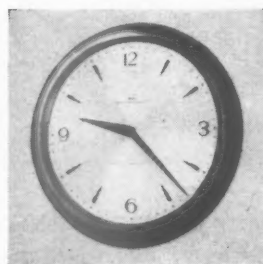
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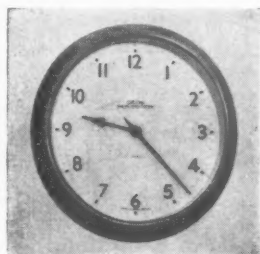
Mayfair/Farnham



Malvern/Fern

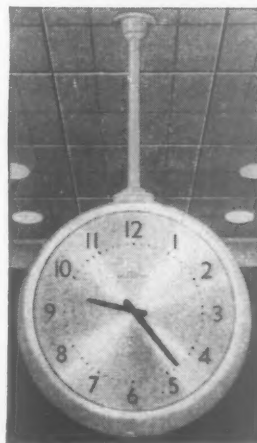
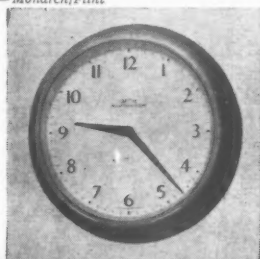
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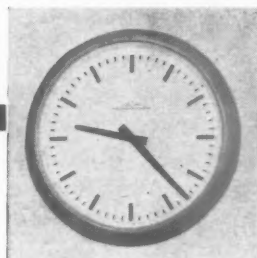


Medway/Fife

Monarch/Flint

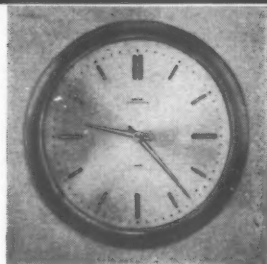


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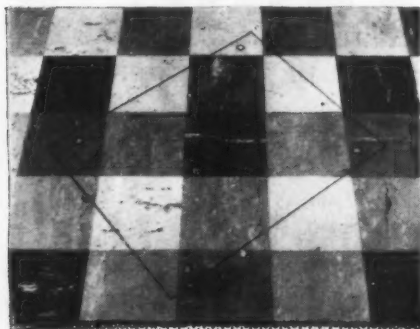
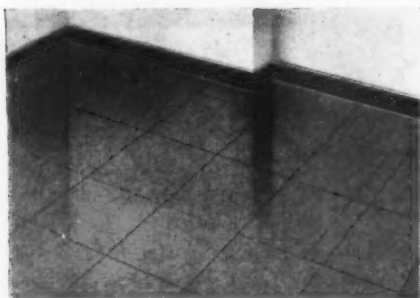
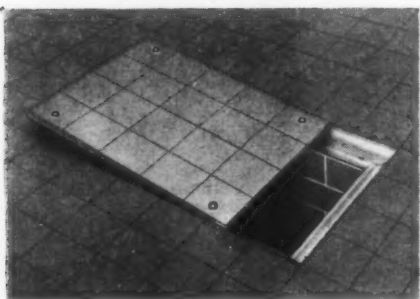
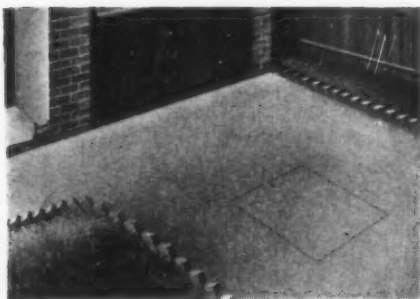
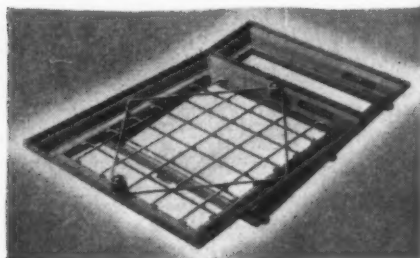
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*This cover seems to have
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heating and sanitary equipment by Ideal-Standard goes into Leeds flats



Architect:

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Leeds City Architect

Consulting Engineers — Heating:
OSCAR FABER & PARTNERS
London, W.C.1

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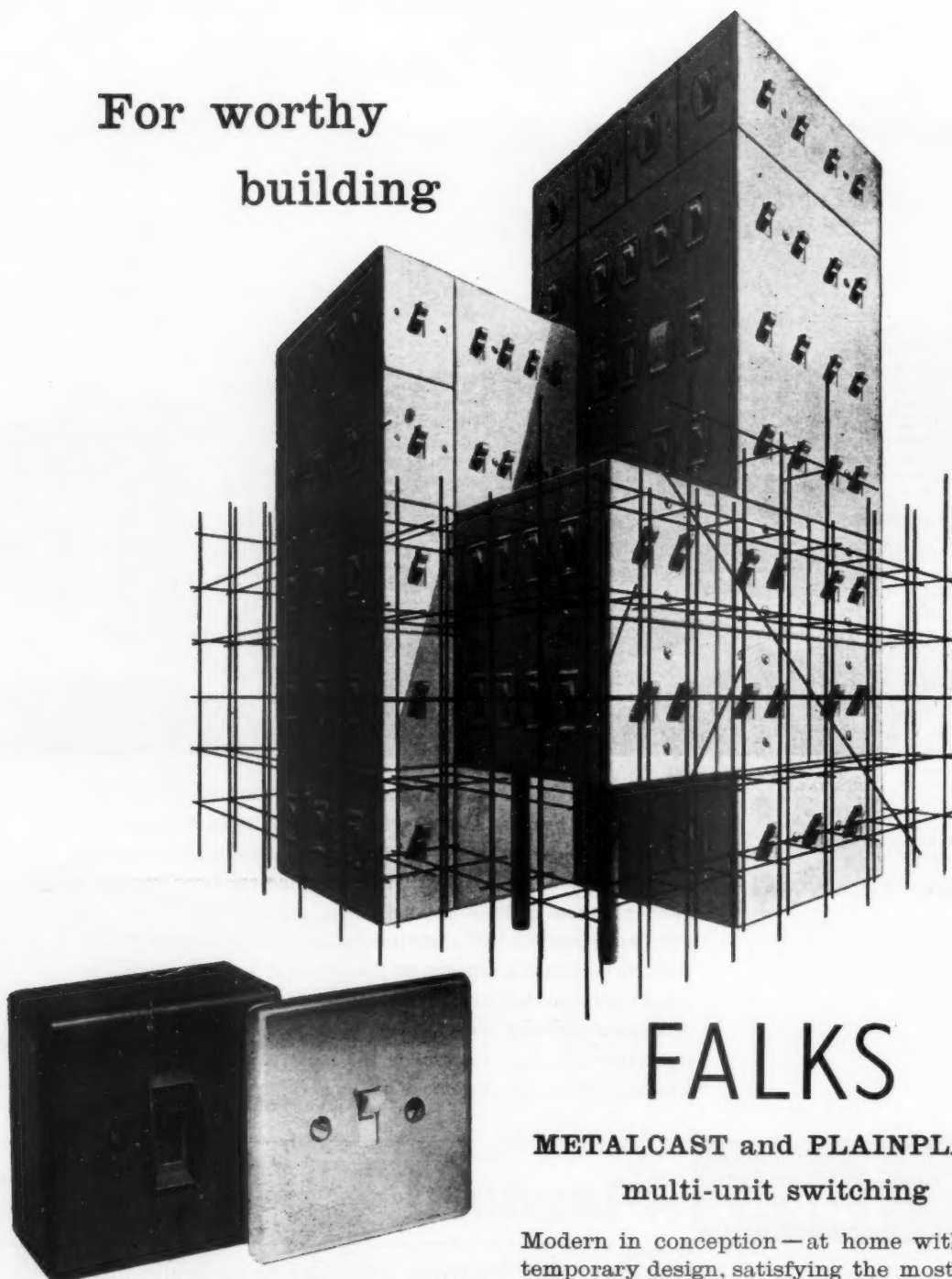
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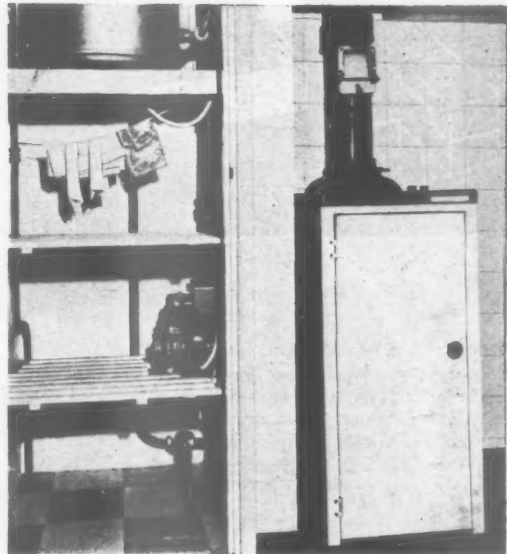
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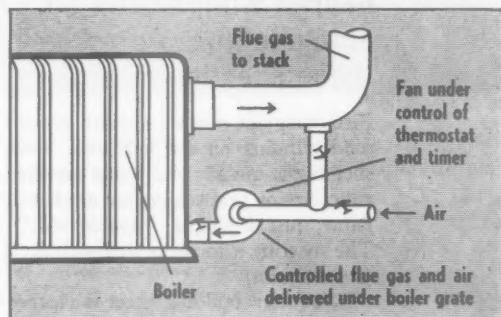
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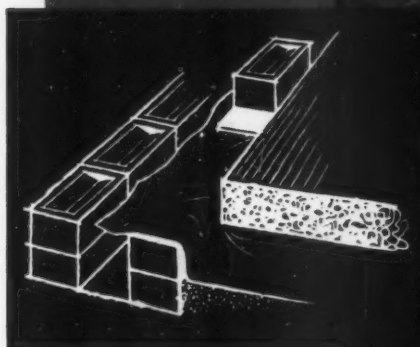
Boiler, fired with Hard Coke, serving a small bore system. The circulating pump can be seen inside the airing cupboard.



The diagram shows a G.A.P. conversion unit fitted to a sectional boiler for Central Heating.

THE BRITISH COKING INDUSTRY ASSOCIATION
15, QUEENSDALE ROAD, LONDON, W.1. Phone: MidYear 9735

Leading contractors defy damp with 'Visqueen' oversite membranes



'Visqueen' 500 heavyweight, laid under the concrete ground floor rafts of a Wimpey house at Acklam, Middlesbrough. This estate is part of their national speculative house building programme.



George Wimpey and Co. Ltd. insure against rising damp and sulphate attack on their housing estates. They specify polythene sheeting as a damp-proof membrane.

First they put down a smooth concrete or sand blinding on the hardcore. Then the sheeting is quickly and easily unrolled. No adhesives or heat sealing are needed for the joints; just a simple "double welt" fold. The sheeting is incorporated with the d.p.c. (see diagram).

'Visqueen' building sheet is *cheaper* than

conventional oversite damp-proofing materials. It also provides an effective seal against liquids and is an efficient water vapour barrier.

'Visqueen' is flexible, tough and chemically inert. Its acid resistant qualities ensure lasting protection for floor coverings and adhesives.

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BRITISH VISQUEEN LIMITED

SIX HILLS WAY, STEVENAGE.

A subsidiary company of Imperial Chemical Industries Limited

RV 147

Solving Two Problems



'VENTILEX' GLASS VENTILATORS

Patent No. 23858

Registered design No. 888900

This simple and highly efficient means of controlling ventilation will be appreciated in all buildings where fug, fumes, cooking smells, etc. are encountered.

Smooth in operation, the 'Ventilex' Ventilator may be completely closed or opened to any degree, ensuring accurate control of the air-flow to meet changing conditions. The frame and opening mechanism are moulded in cream plastic. The movable disc is of toughened glass. Diameter of glass disc: 9½".

The 'Ventilex' is particularly suitable for kitchens, canteens, bars, bathrooms, offices, showrooms, etc. It can be fitted to existing windows.

'INTER'

Registered design No. 888909

The Glass 'Talk-through' Window

An hygienic and fool-proof means of two-way communication for cash desks, kiosks, theatre and railway booking offices, hospitals, banks, etc.

Attractively styled in ivory plastic and toughened glass, the 'Inter' Glass Talk-through Window provides facilities for easy conversation combined with hygienic protection, eliminates draughts and is a safeguard against theft.



When not in use, the toughened glass disc is simply moved to the closed position by means of the chromium plated mechanism.

Designed and manufactured by COVER S.P.R.L., Brussels. Sole Distributors in Great Britain:



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'Welvic' p.v.c. is used by Rylands Brothers Ltd., Warrington for the covering, of the 'Rylastic' chainlink fencing round their own recreation club ground.

When you cover chain link fencing with p.v.c.
cover it with 'Welvic'

An increasingly popular use of 'Welvic' is in covering wire for chain link fencing. One of the companies who both cover the wire and make the fencing is Rylands Brothers Ltd., Warrington. The 'Rylastic' chain link fencing which surrounds their own recreation club ground is, in fact, covered with 'Welvic'.

Companies using 'Welvic' p.v.c. compounds can at any time take advantage of I.C.I.'s research and technical service, the finest of its kind in the country. Even if you are only contemplating the use of p.v.c., I.C.I. will be glad to hear from you, and will be glad to put their service at your disposal.

'WELVIC'

'Welvic' is the registered trade mark for the p.v.c. compounds manufactured by I.C.I.

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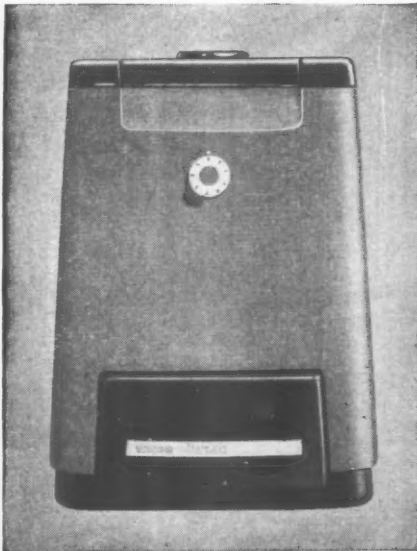
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quartic boiler body. **24 gns**



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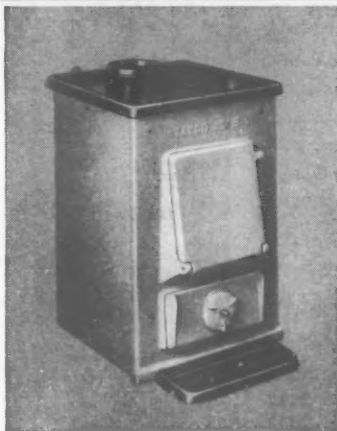


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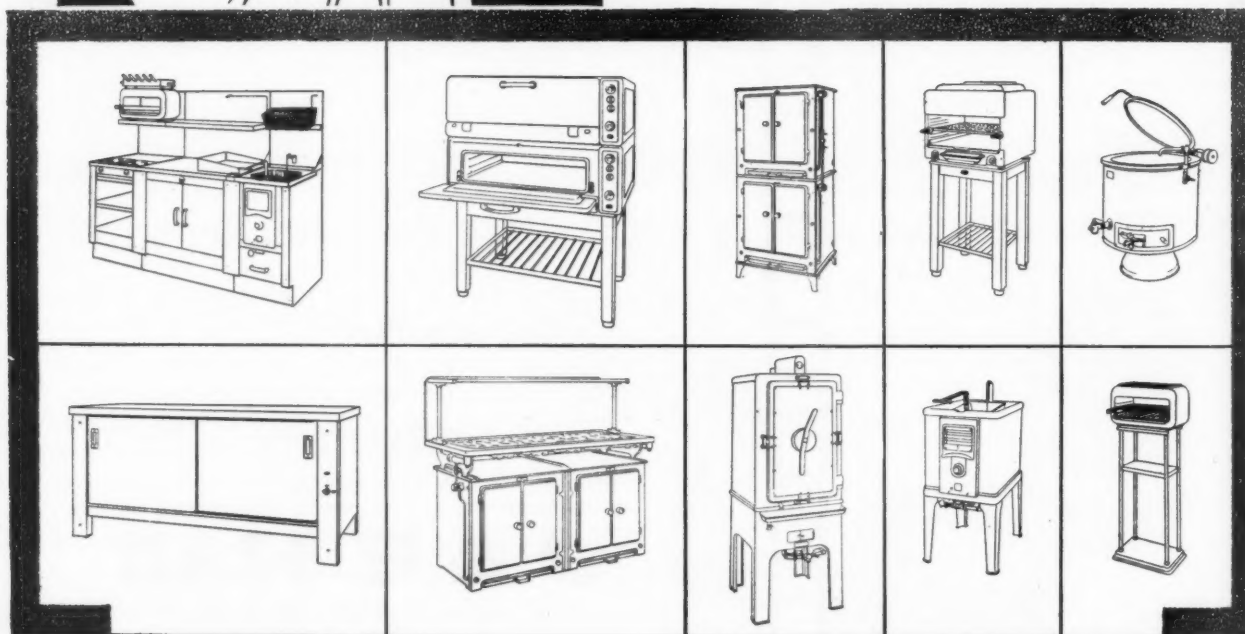
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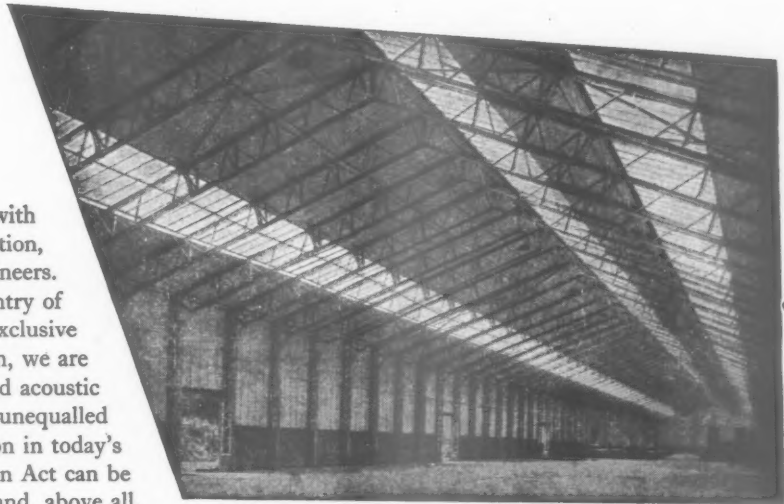
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The Factory Insulation Act

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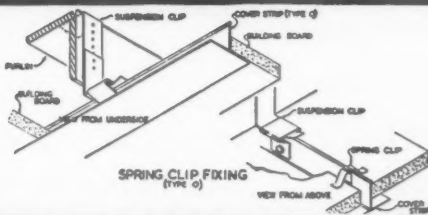
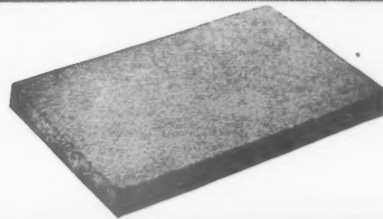
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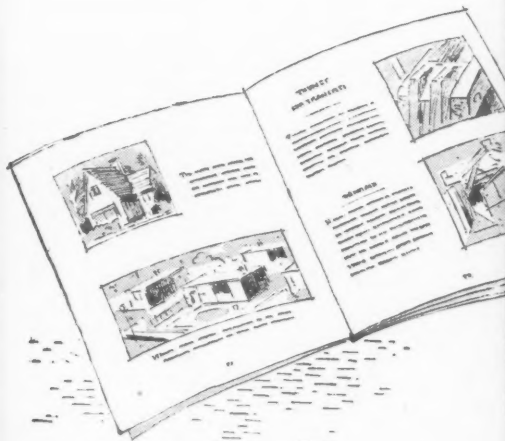
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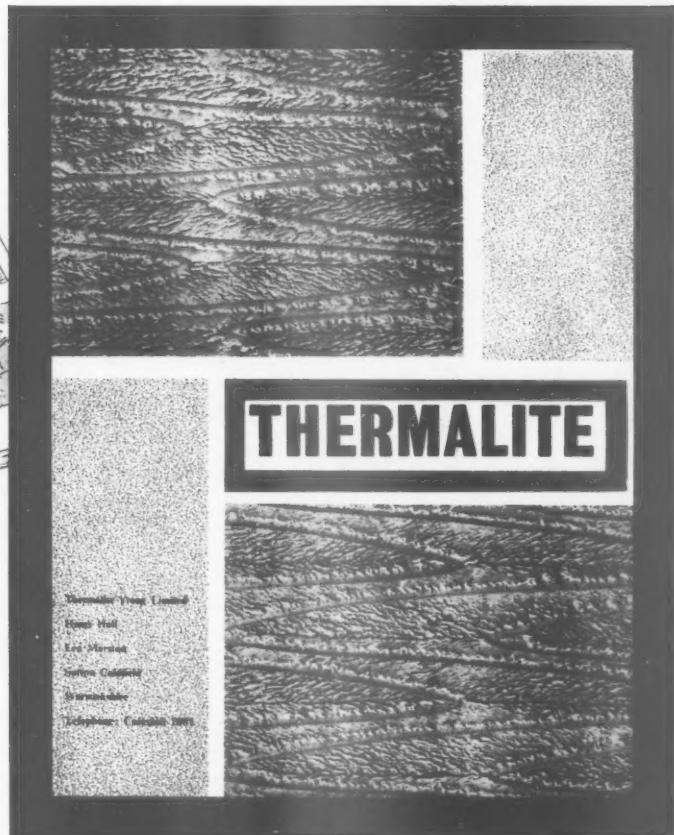


ALL THE TECHNICAL INFORMATION IS HERE....



*you are invited
to write for a
copy...*

The contents include: basic data, details and properties (including thermal, acoustic and fire resistance figures), building practice (including recommended mortars, rendering, finishing, decorative treatments, tiling and joinery fixtures), comparative thermal values, load distribution, partition details and laying rates.



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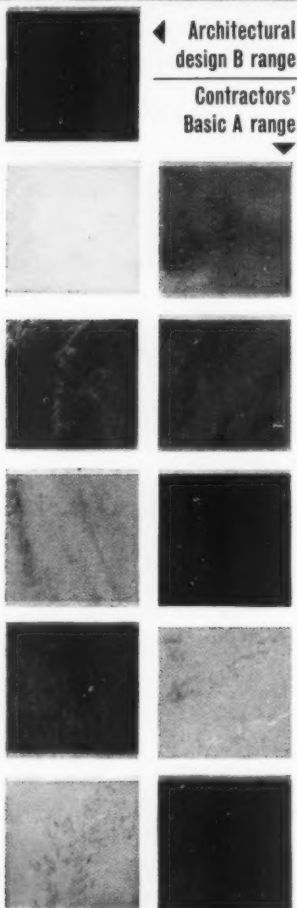
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One of the reasons why Nairn Vinyl tiles are used in the laboratories at Croydon Girls' High School is their high resistance to chemical spillage

for commercial and do

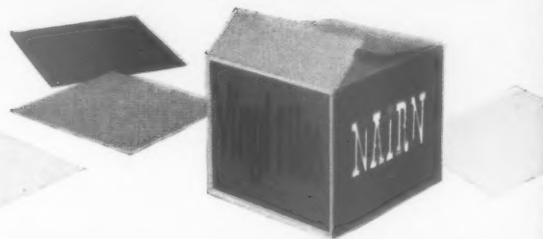
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HOW TO CREATE ATTRACTIVE FLOORS INEXPENSIVELY

Nairn have produced two ranges in the 3.2 mm gauge for commercial application. There are five colours in the contractors' basic A range and six in the architectural design B range. Tiles in the A range, consisting of the colours that constitute the greatest demand from architects, are produced to a specification especially for contractors interested in laying floors at highly competitive prices—and these two ranges now make it possible to create attractive and imaginative flooring schemes for a low cost. This is done by incorporating just a few of the lighter, more expensive tiles from the B range.

A special feature of the range is the 12" x 12" tile—the most economical size for laying, and the most visually attractive in large installations—which is available in all colours of this range. Normal thermo-plastic techniques are used for laying these 3.2 mm tiles. And, under certain conditions, they can also be laid on direct to-earth concrete floors without a damp-proof membrane.

terange of Vinyl tiles



CONTRACTOR—S. & S. FLOORS LTD. The dental surgery of a forces base in the north of England. This floor covering of Mermaid 3.2 mm Nairn Vinyl tiles is easy to clean and therefore hygienic. It is also unaffected by antiseptic cleaning agents.

CONTRACTOR—A. B. DALZELL LTD. The kitchen of a family home at Wimbledon. This attractively designed floor is laid with 2.0 mm Nairn Vinyl tiles.

and domestic use

DOMESTIC GAUGE

There are nineteen colours in the 2.0 mm domestic range, giving the greatest possible scope for expression in colourful and attractive design. Main black and white are two of the colours in this wide range for which there is a particularly big demand. Prices are competitive and uniform throughout the range. This means that the exact cost of a flooring scheme can be assessed quickly and easily.

These Nairn 2.0 mm Vinyl tiles can be laid at room temperatures above 65°F. without tile-heating equipment, and this greatly simplifies the laying of the smaller domestic installation.

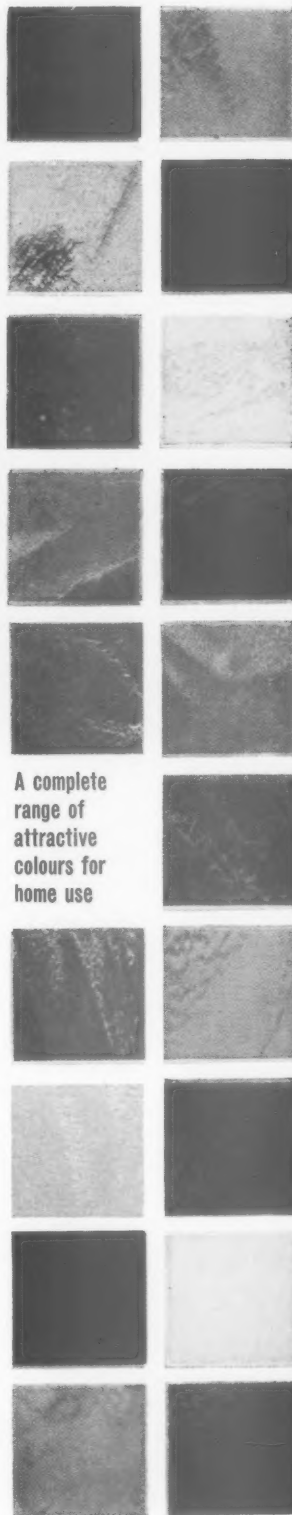
TESTS FOR FLEXIBILITY, HARD WEAR AND RESILIENCE

All tiles conform to the appropriate draft British standards for vinyl (asbestos) floor tiles, and each batch is thoroughly tested both physically and chemically in the Michael Nairn laboratories. An important feature of Nairn Vinyl tiles is their resistance to the various forms of spillage encountered in kitchens, canteens and workshops. Liquids such as ammonia, detergents, mild acids, bleach and washing soda have little or no effect on them.

NAIRN TECHNICAL ADVISORY SERVICE

Technical representatives based at our area offices are at your service to give advice or information on all matters concerning floor covering materials. If you wish to consult one of these representatives, please write to or telephone any of the following offices:

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Kirkcaldy 2011 (10 lines)
LONDON EC1: 131 Aldersgate Street, Monarch 3211 (8 lines)
BIRMINGHAM 2: 65 Temple Row, Midland 5989 (2 lines)
BRISTOL 4: 349 Bath Road, Bristol 77840
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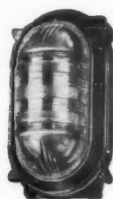
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40/60 Watt.



List No. SY.10
100 Watt.



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List No. SP.12
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List No. SP.14
100/150 Watt.



List No. SY.16
40/60 Watt.



List No. SY.18
100 Watt.



List No. SP.16
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List No. SP.18
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List No. SY.20
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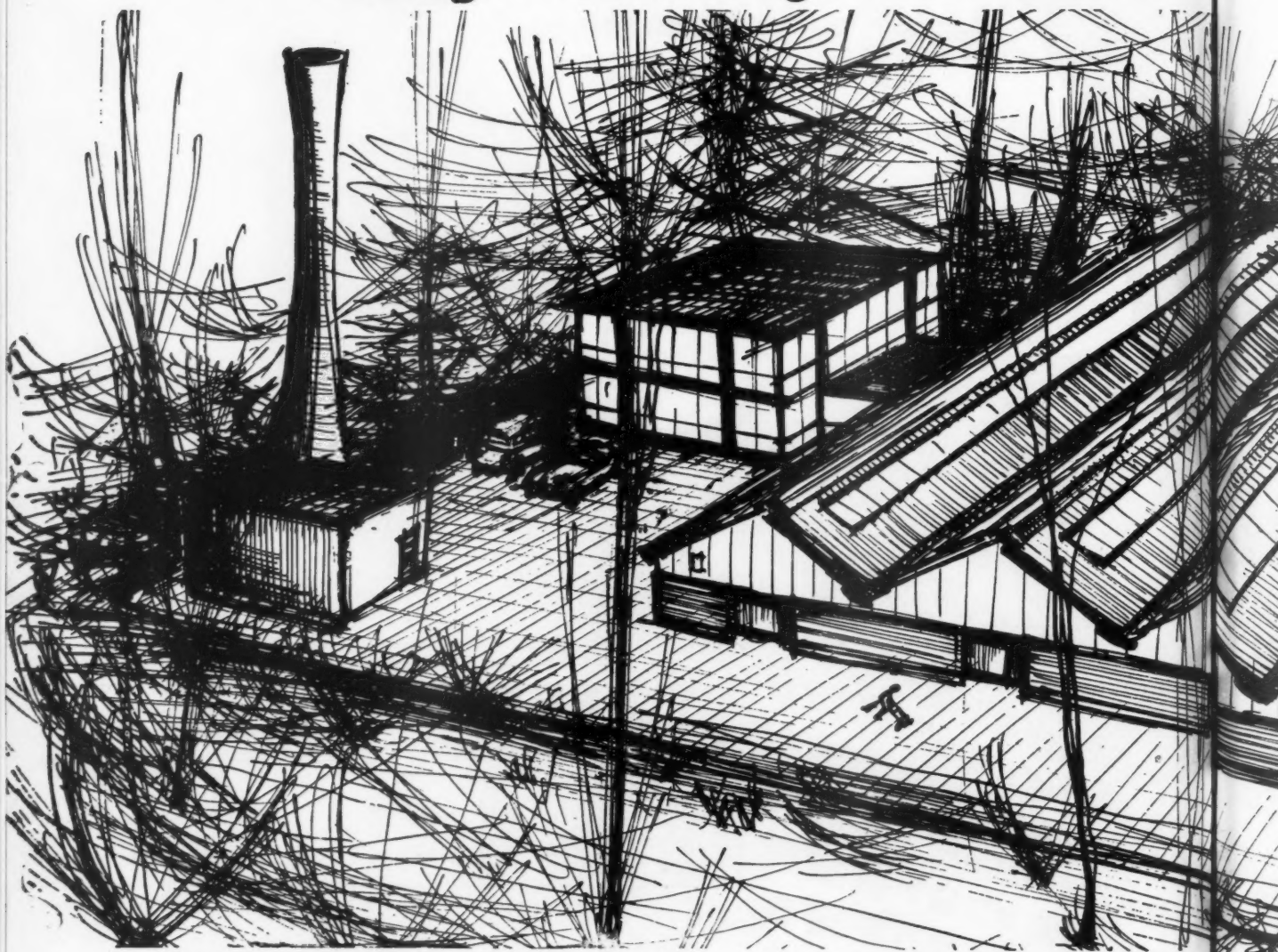
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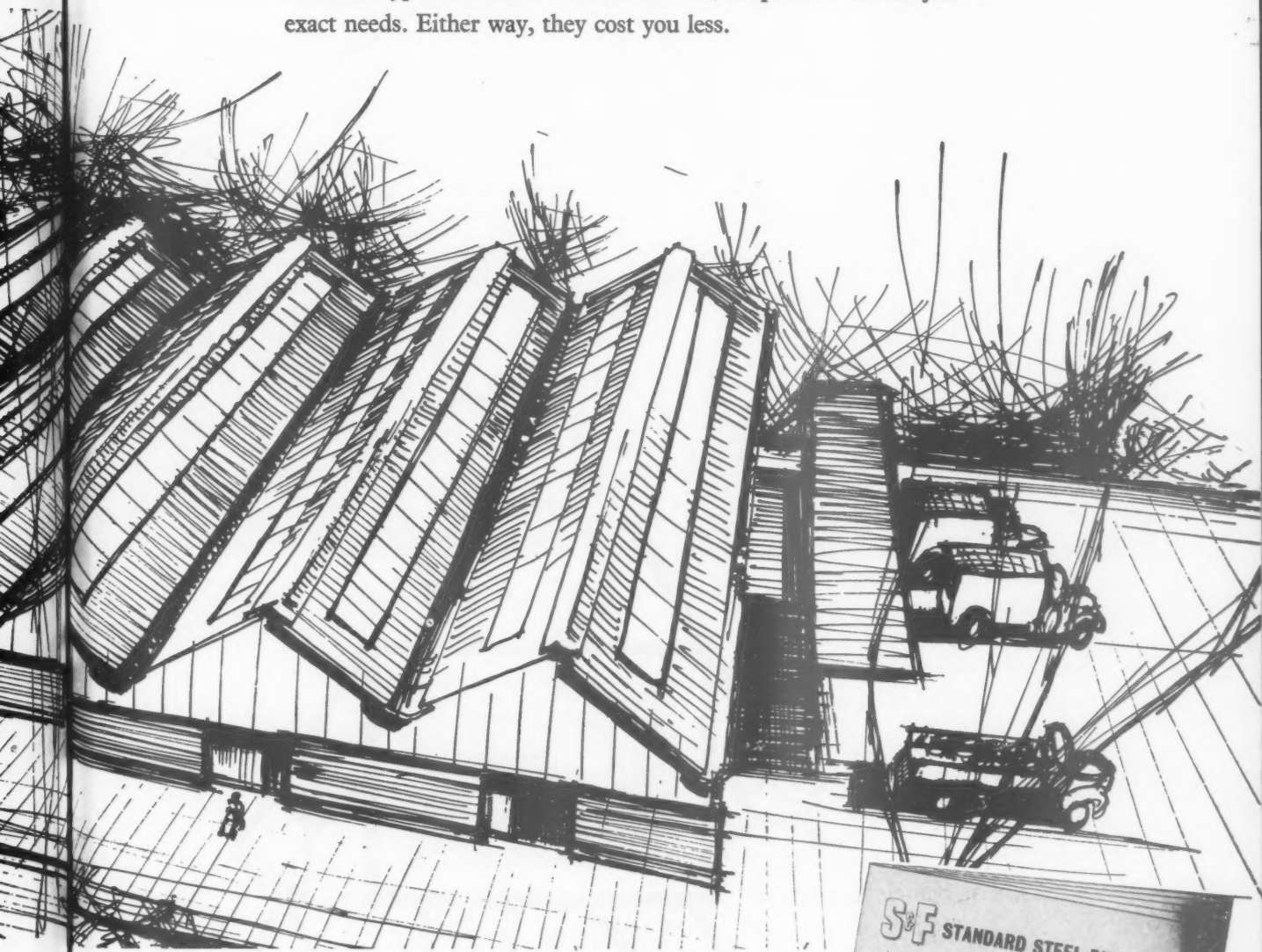
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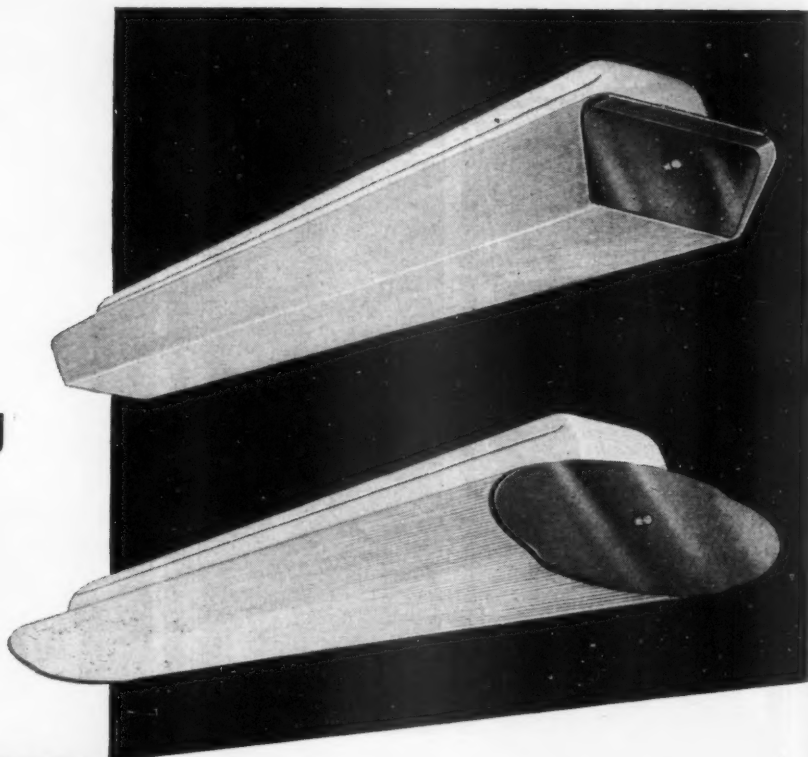


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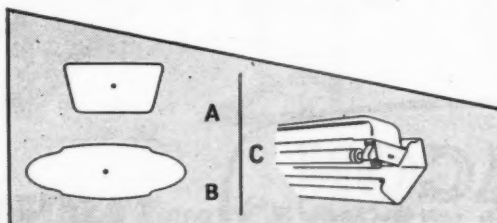
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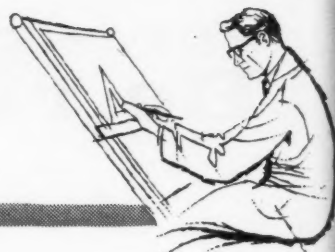
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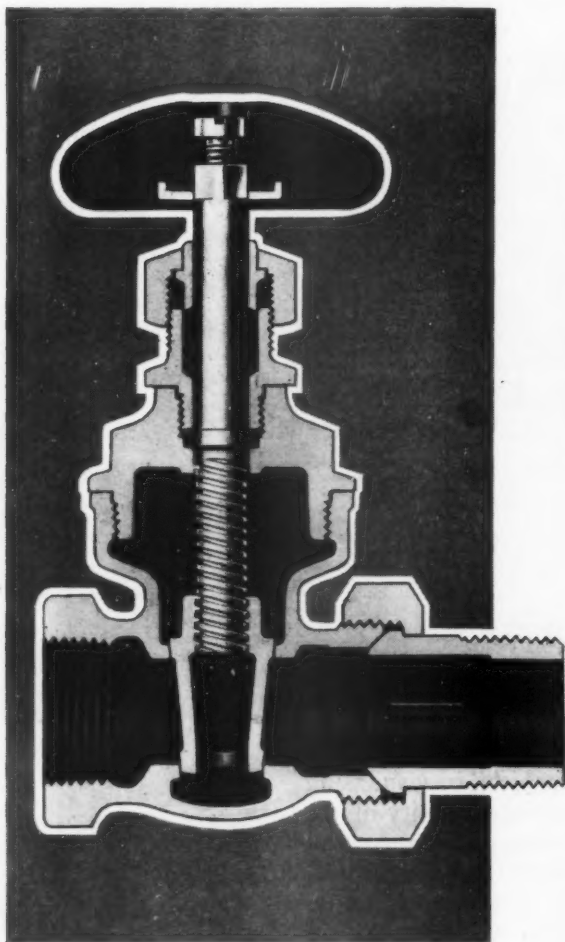
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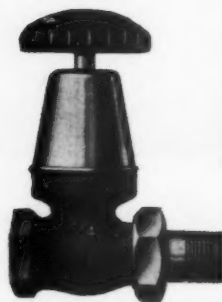
Gun - Metal RADIATOR GATE VALVES



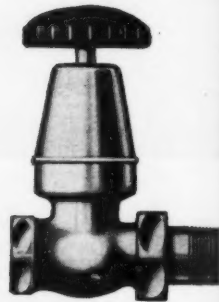
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Notable details are: unobstructed flow area when fully open; solid wedge and correctly pitched acme thread for easy and positive operation; composition hand wheel with deeply recessed centre screw; cast gun-metal body and tailpiece; standard, semi-easyclean and full easyclean designs. Full and semi-easyclean patterns can be supplied in chromium plated finish.

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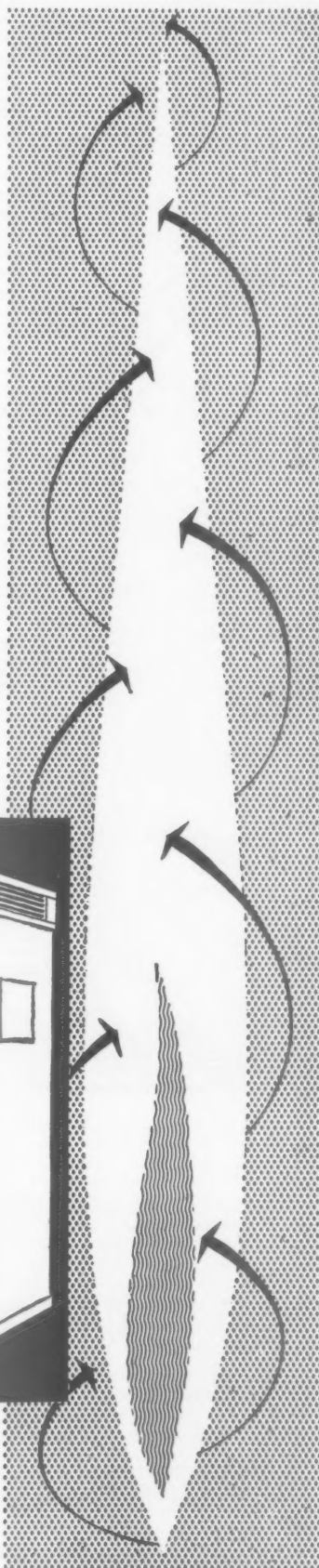
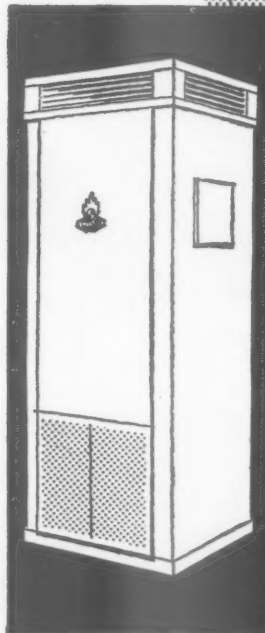
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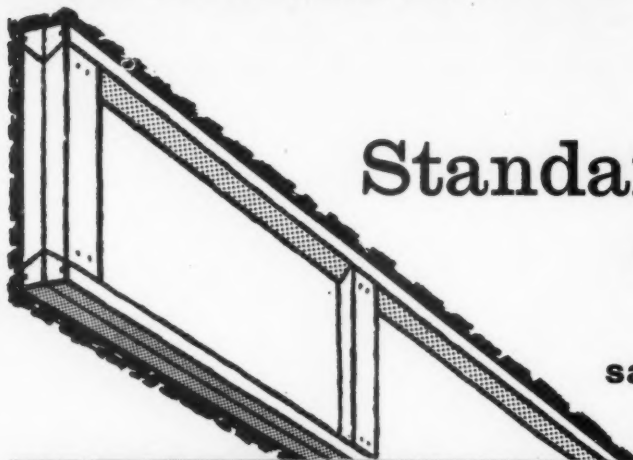
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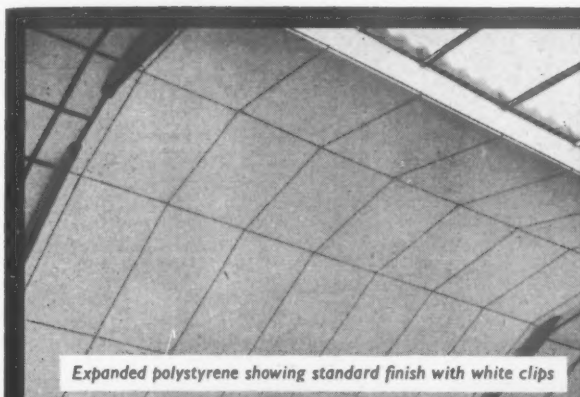
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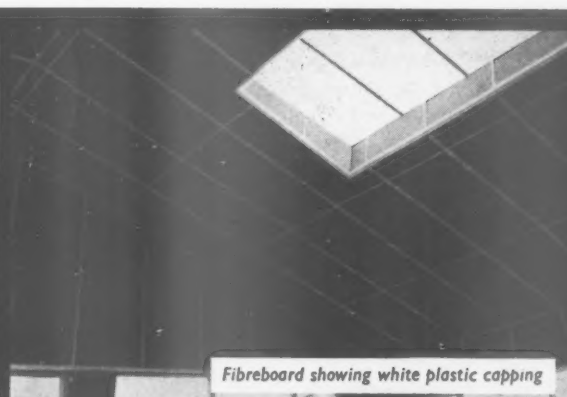
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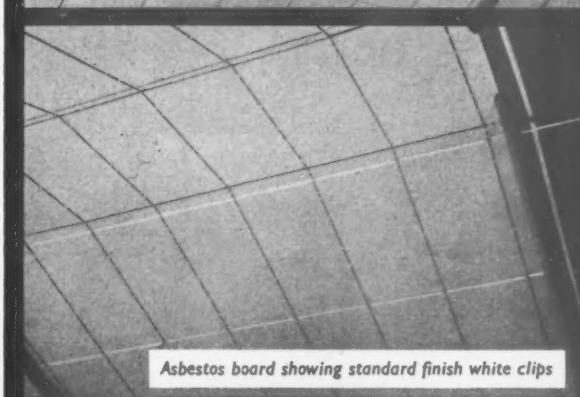
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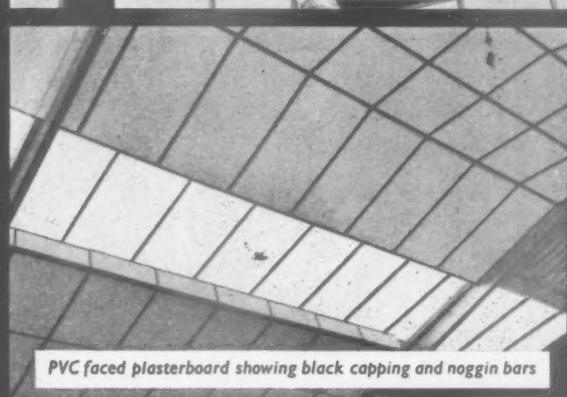
Expanded polystyrene showing standard finish with white clips



Fibreboard showing white plastic capping



Asbestos board showing standard finish white clips



PVC faced plasterboard showing black capping and noggin bars

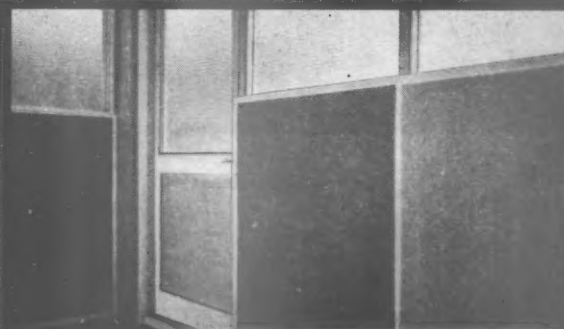
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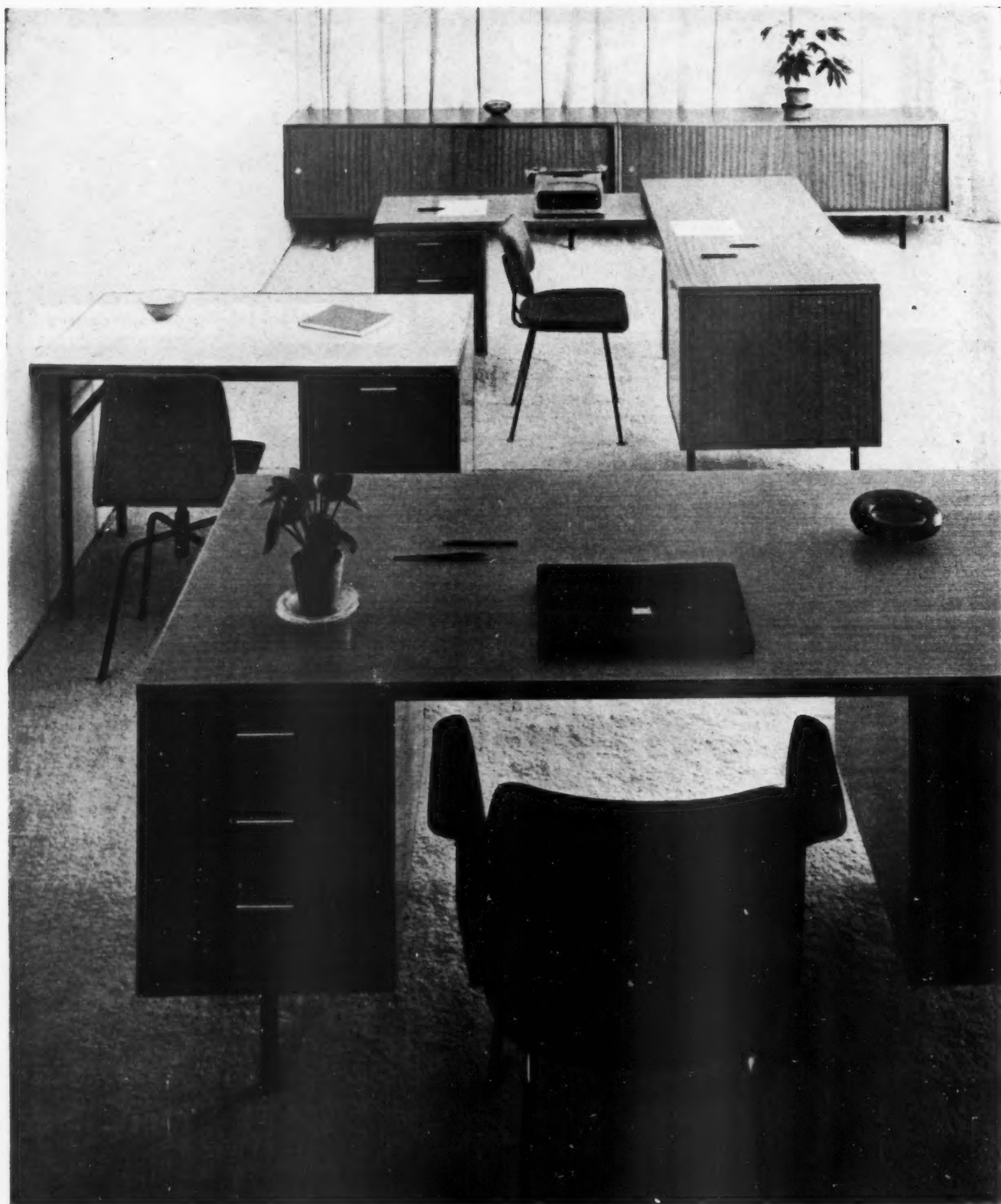


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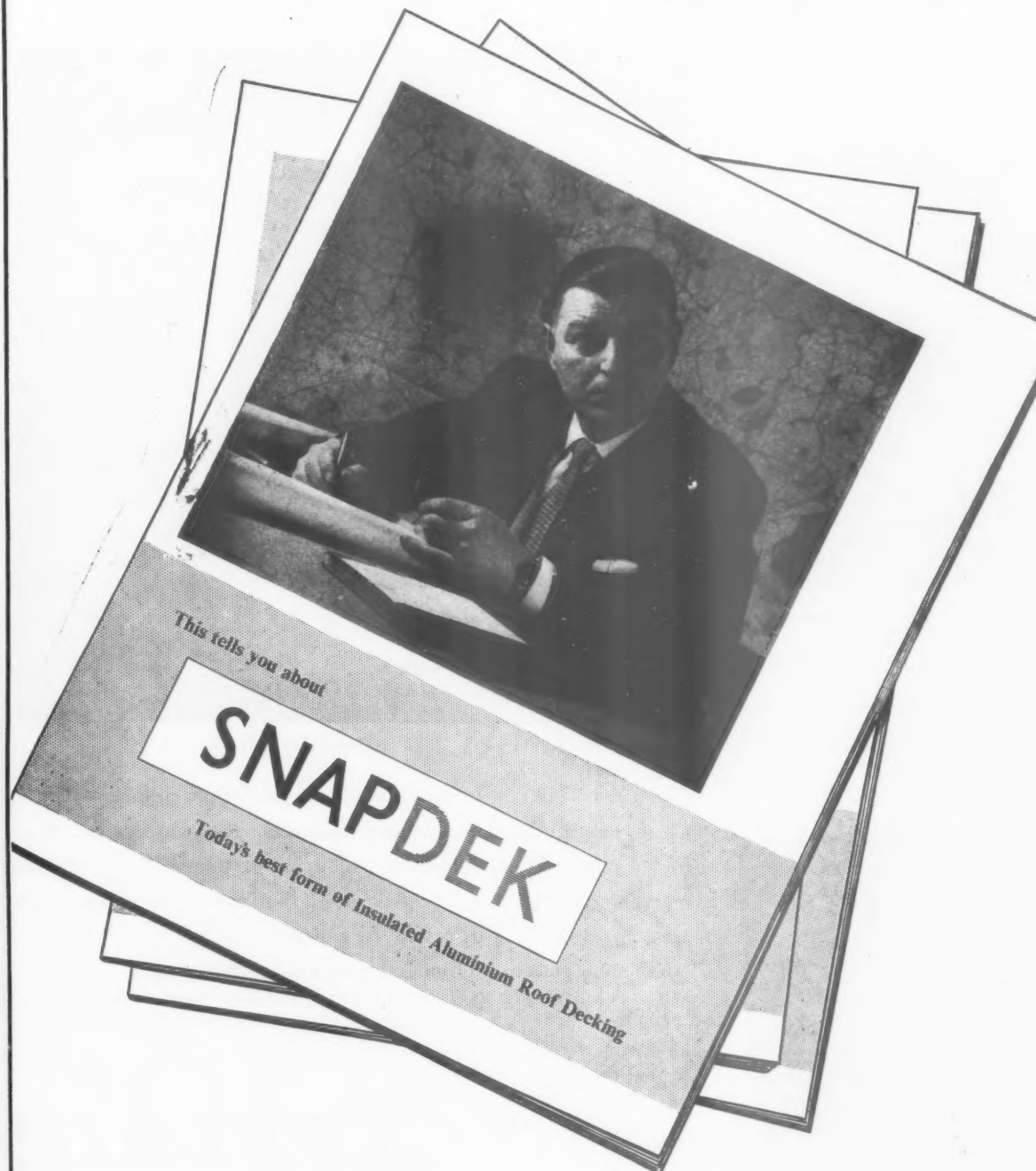
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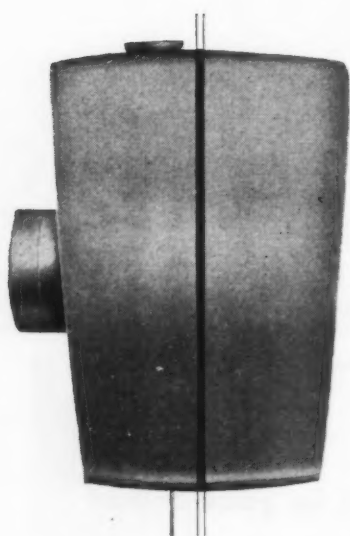
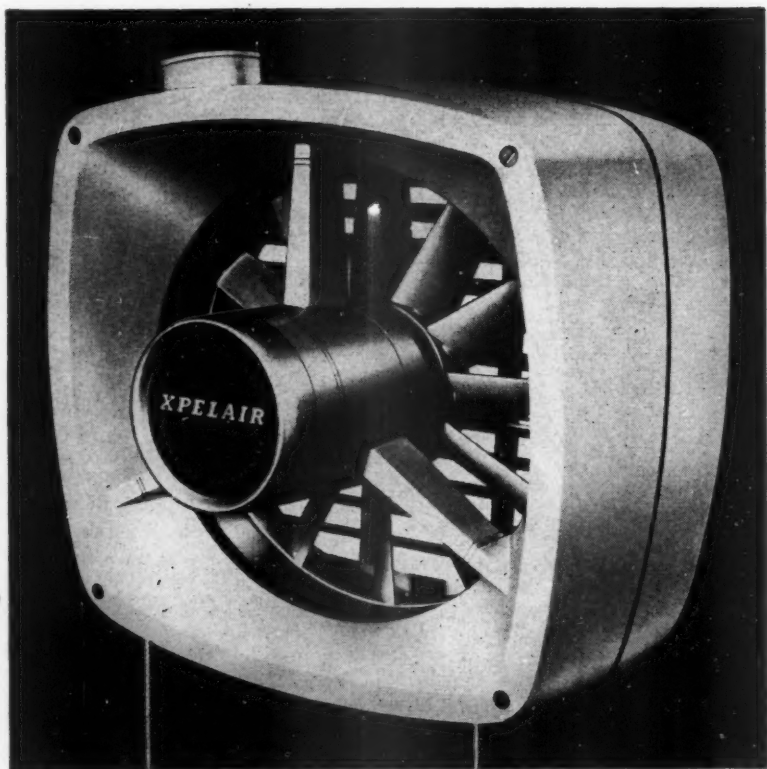
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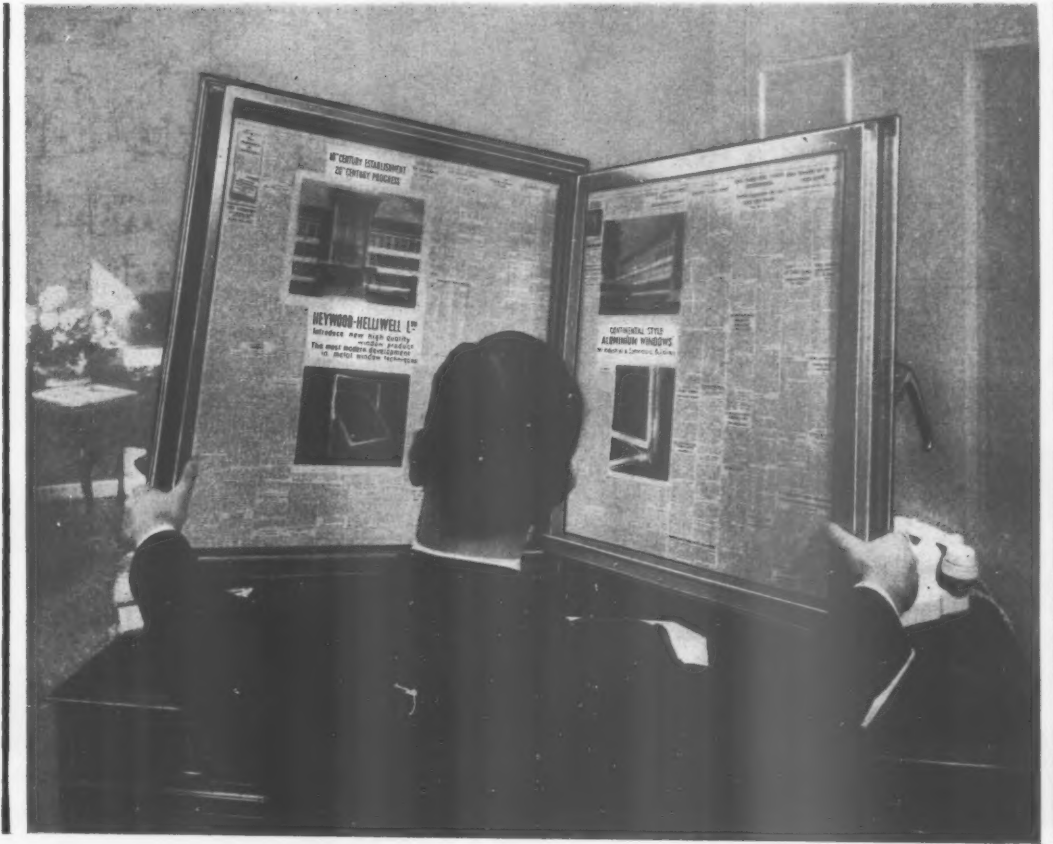
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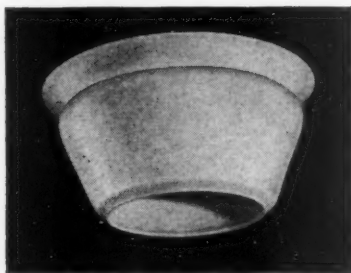
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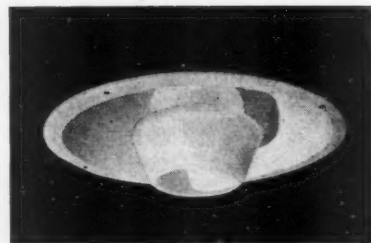


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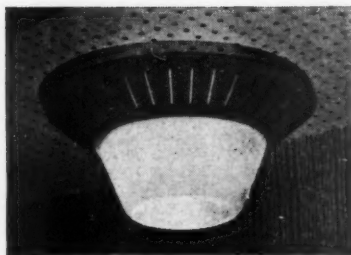
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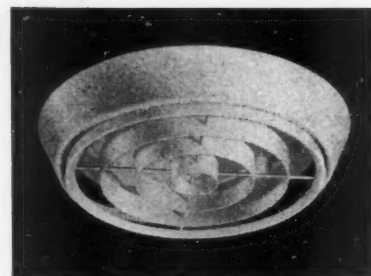
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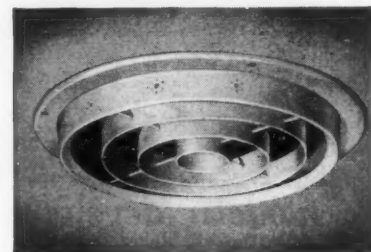


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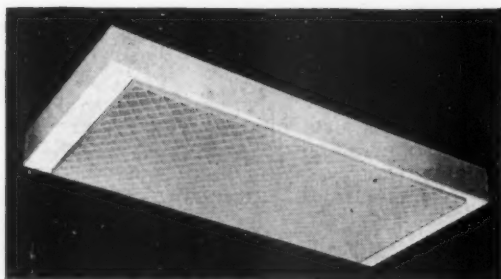
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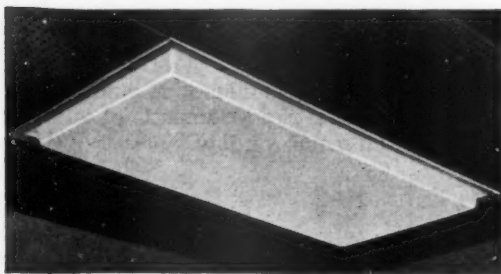


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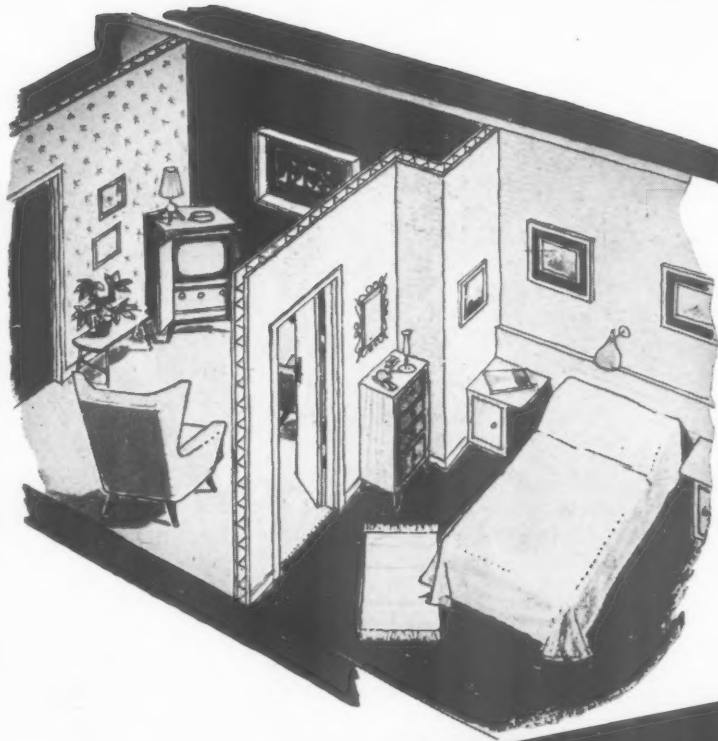
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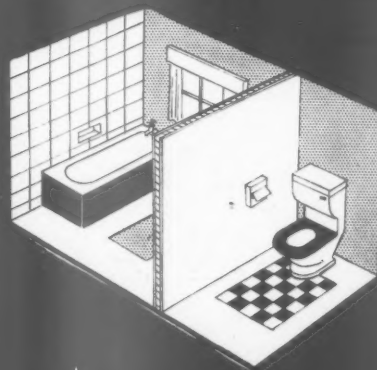
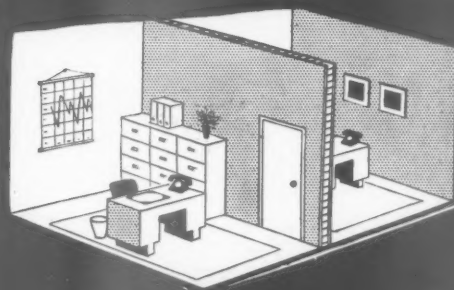
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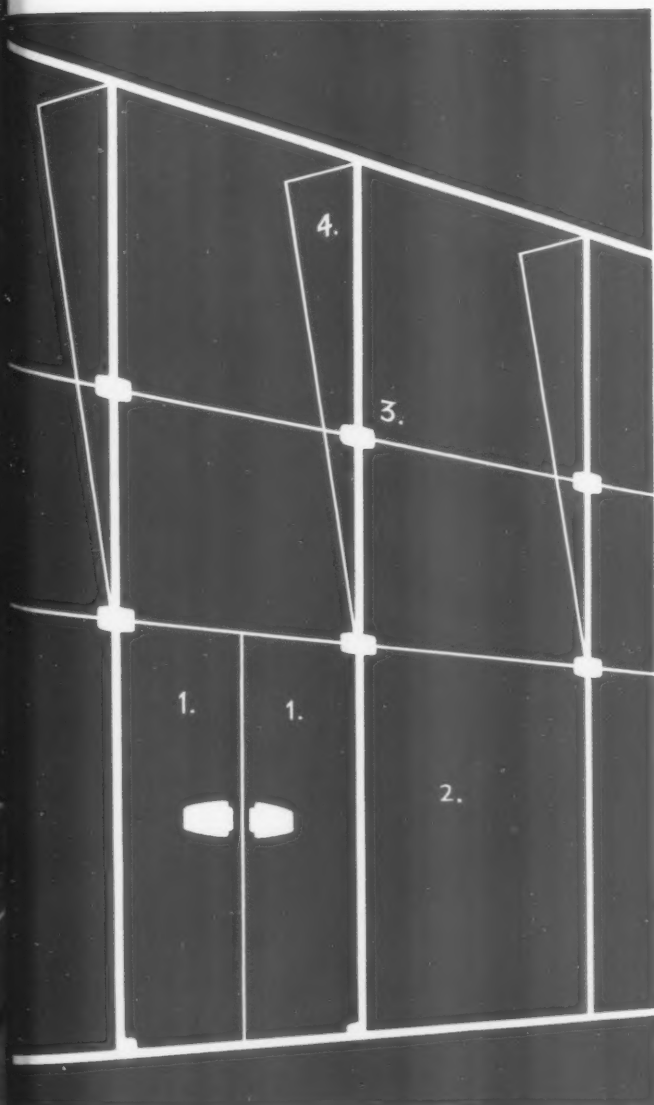




This showroom front, based on an idea by Edward D. Mills, F.R.I.B.A., exemplifies the opportunities for erecting imposing all-glass assemblies using Pilkingtons' "ARMOURPLATE" Glass Doors and Panels.

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Top: A general internal view of the steelwork of Bean's Industries' factory.

Centre: Close-up of Tubular lattice girder carrying intermediate roof trusses.

Below: An exterior view of the completed buildings.



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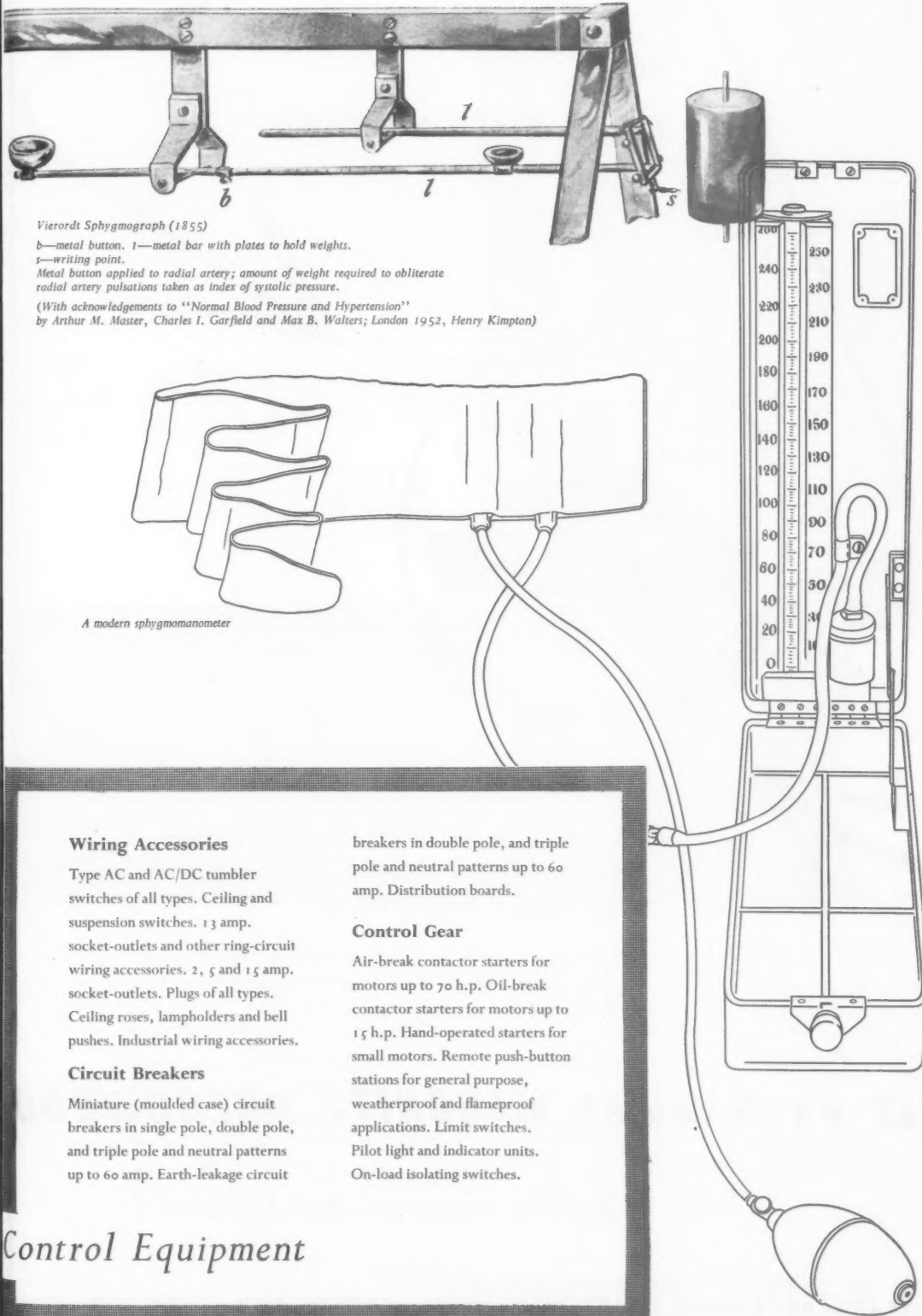
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(With acknowledgements to "Normal Blood Pressure and Hypertension"

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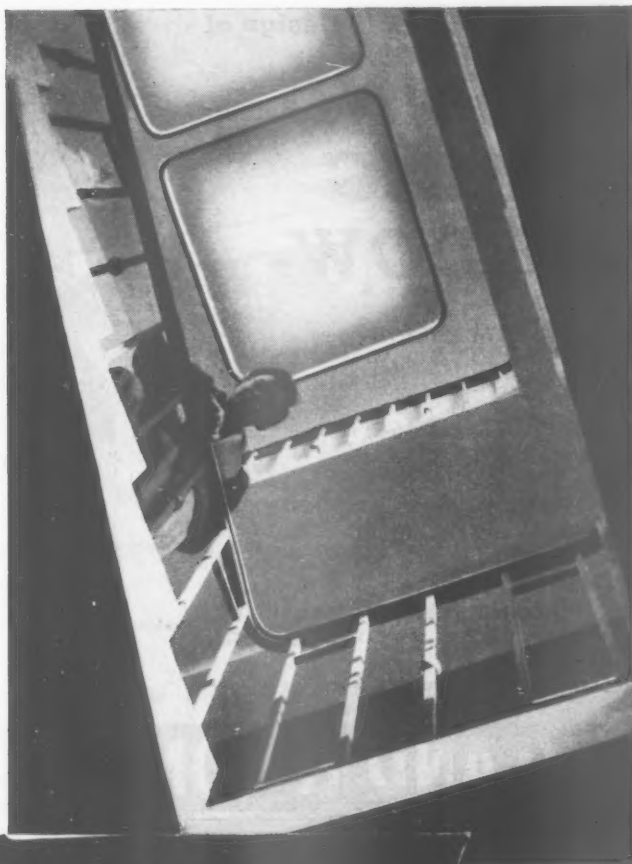
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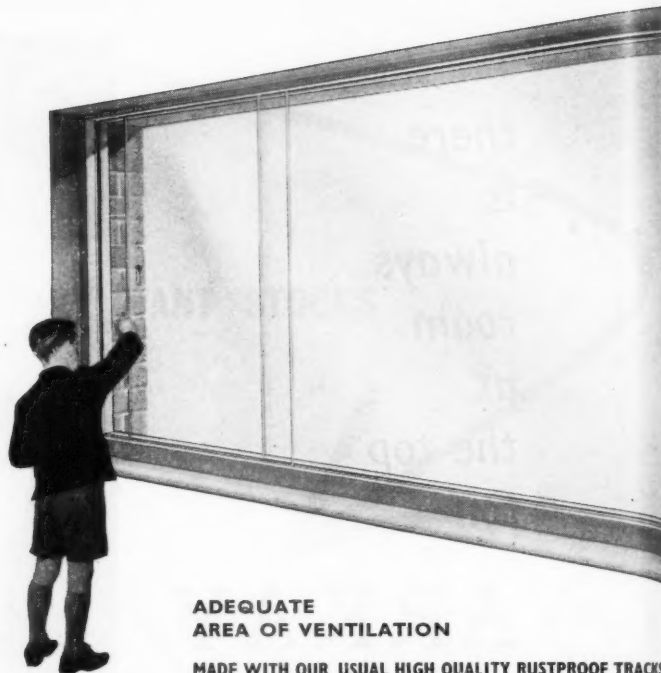
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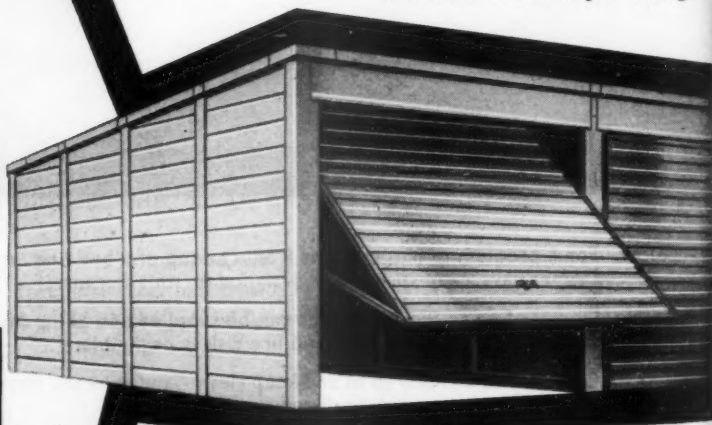
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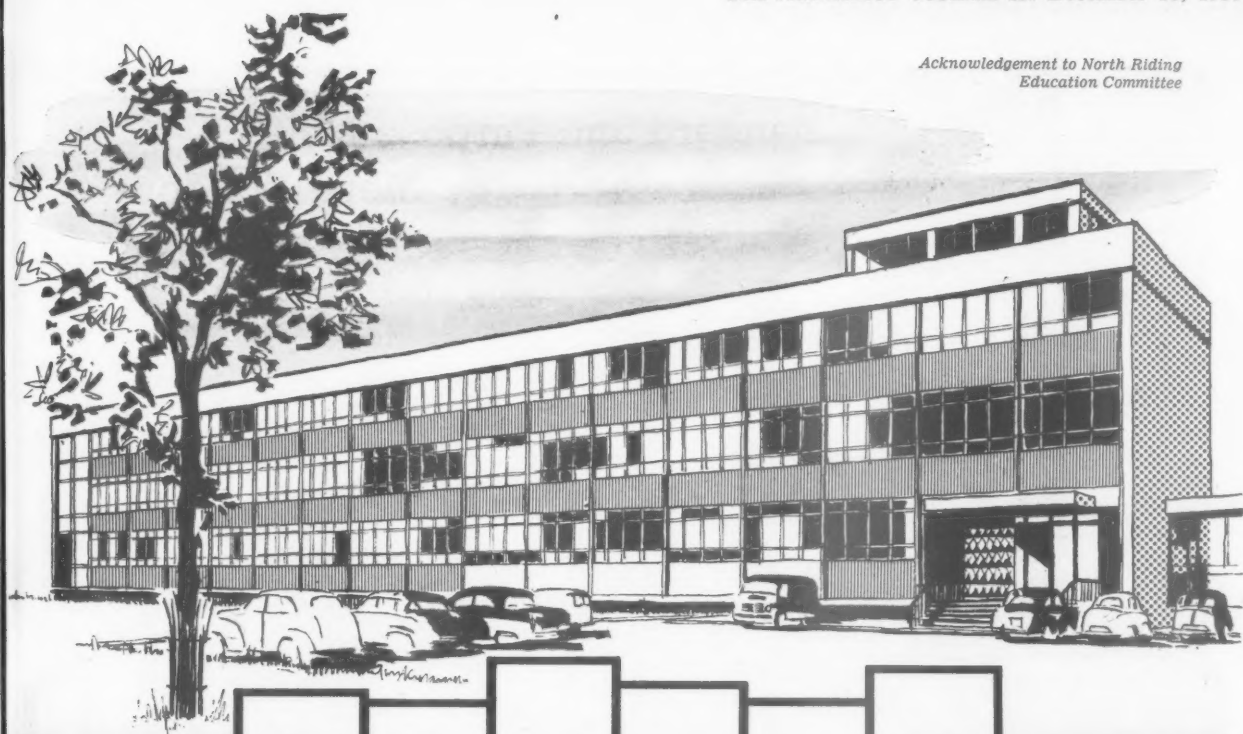
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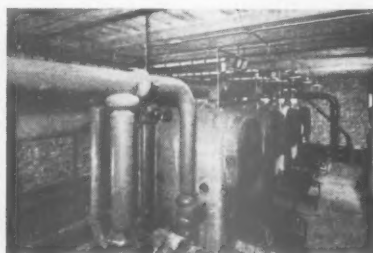
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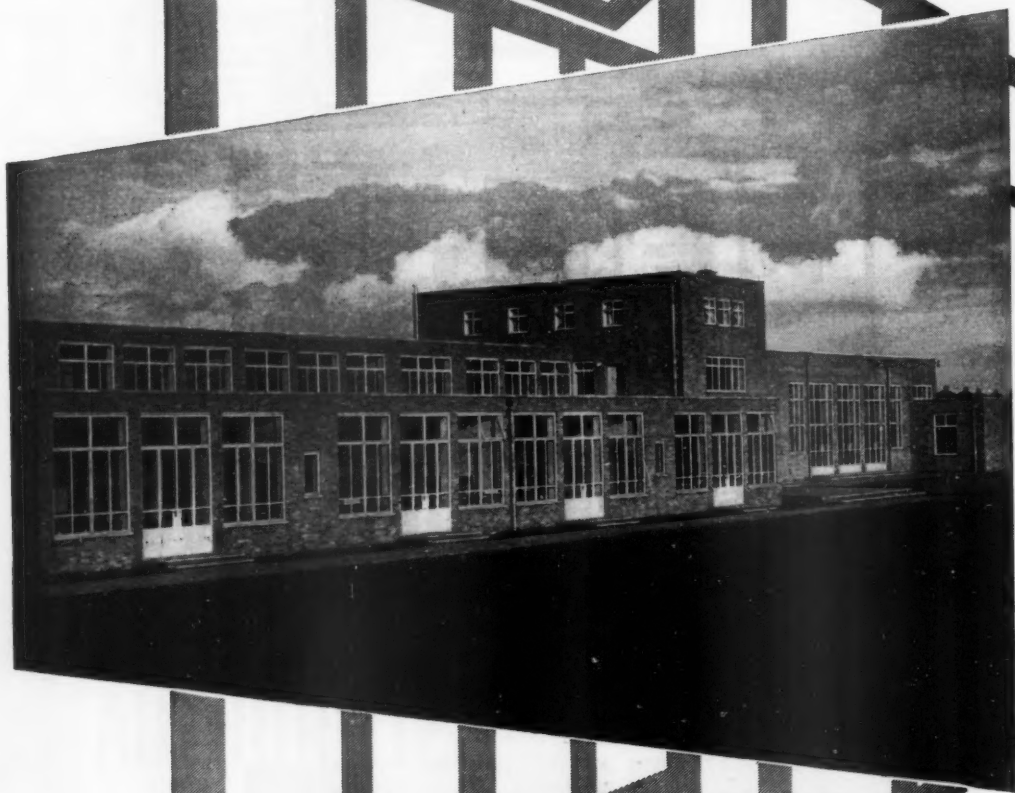
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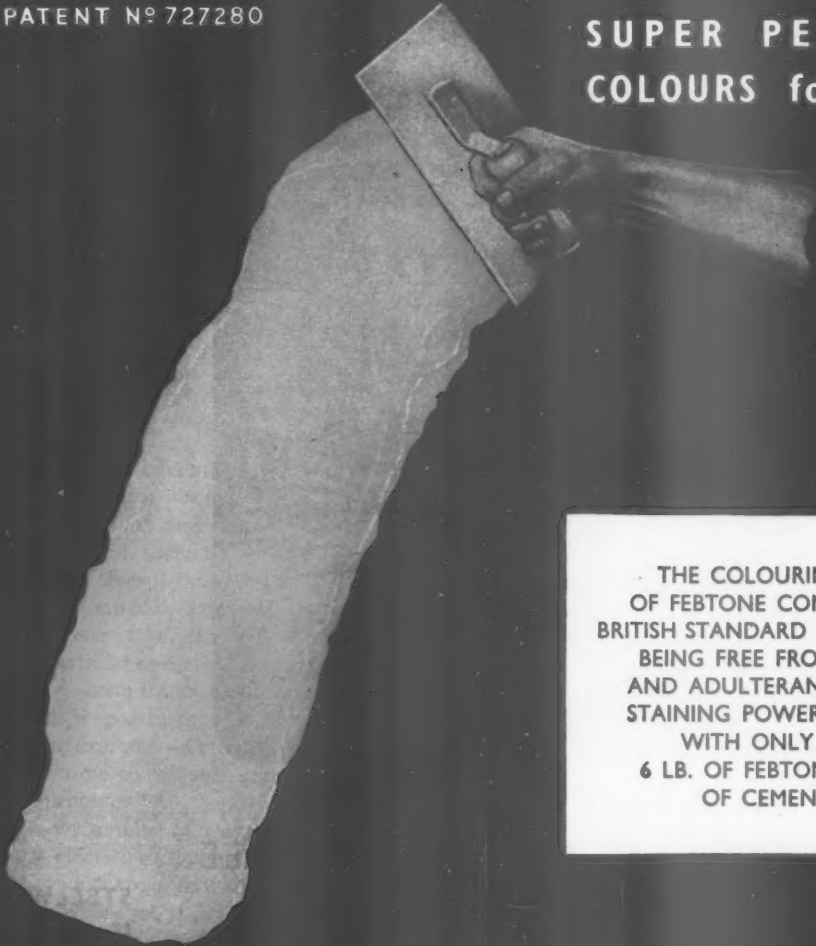
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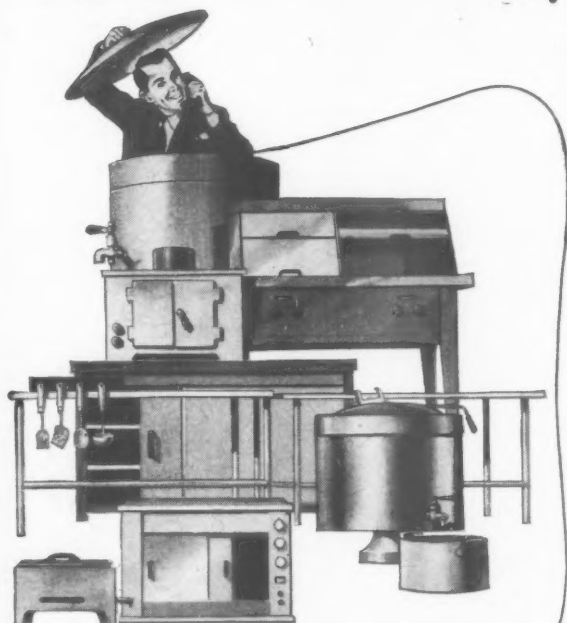
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The Architects' Journal

No. 3373 Vol. 130. December 10, 1959

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NOT QUITE ARCHITECTURE

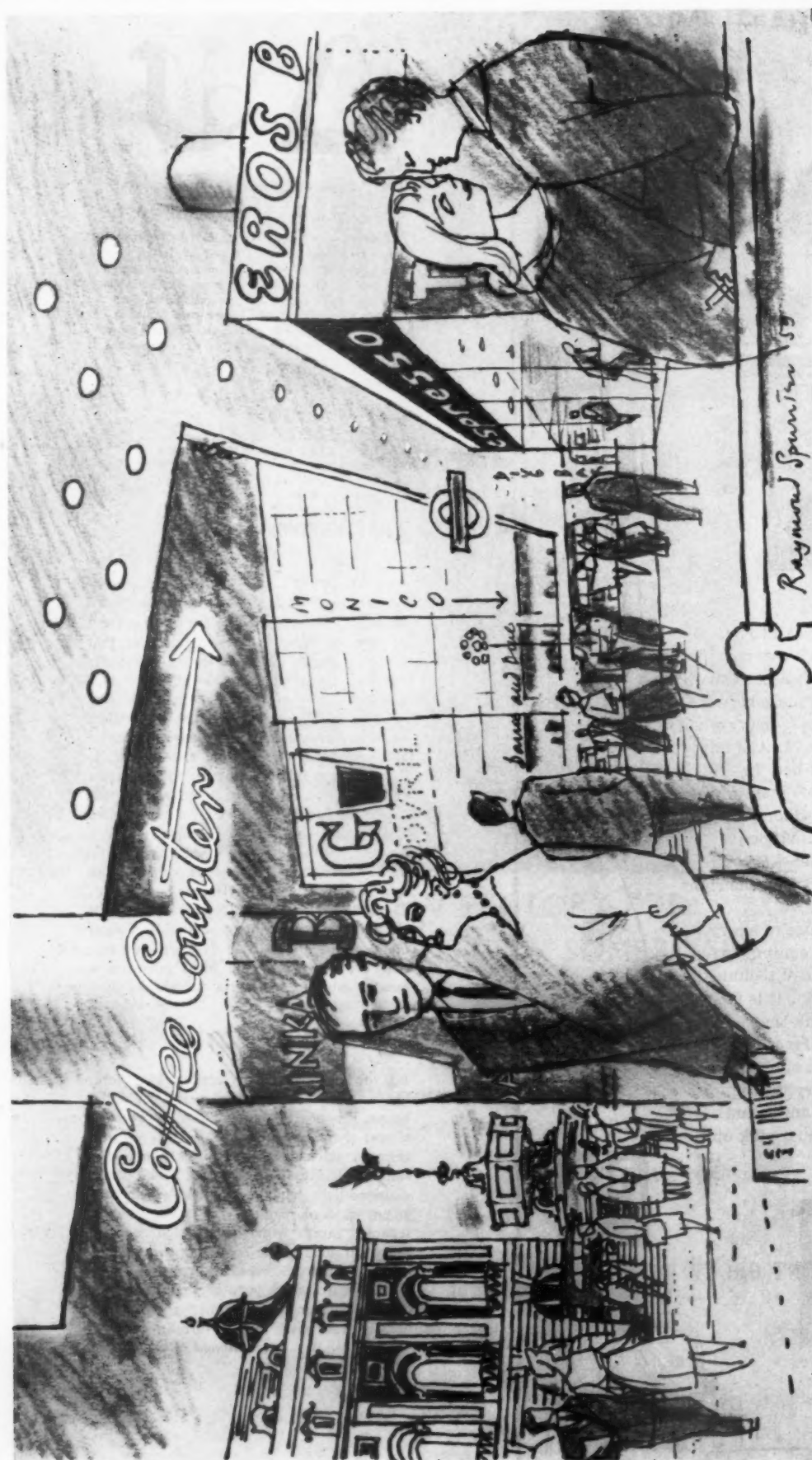
Sub-Nursery-Topia

CHRISTMAS IS COMING. And as architect-parents, uncles, aunts or friends, we will soon be lingering a little longer than usual in front of the toy shop windows. Look at that beautiful model of a Bentley, with battery-operated electric motor (too good for that destructive boy of your sister's). Could buy it for yourself, just to say you had a Bentley, because that is the only size you will ever be able to afford. Or see that superb electric locomotive, a miniature of the "King" class Great Western engines, complete with copper cap to the funnel and distinctive brass dome. That would run well on young Timothy's layout, but would look odd pulling the motley assembly of goods trucks which he has. Then there is a sleek motor launch with fine hull lines, nicely planked deck, and small chromium plated fittings, operated by a small diesel engine fitted with a fly-wheel. Imagine that droning across the local pond on a Sunday morning, cutting a clean wake over the still water.

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But the spell is suddenly broken. For there, like a toad among the fairies, is a toy dolls' house. It is nearly a cube, has a hipped roof almost pyramidal in shape, a large outside chimney stack, bright red brick paper outside, grey slate paper on the roof, metal diamond-light windows painted cream and green, a door painted the same, and a separate garage with steep gabled roof. A horror. Inside (for the front is open to reveal the interior) are flowered wallpapers in bedrooms, fishy wallpapers in the bathroom, porridge paper in all other rooms, and heavily varnished brown furniture every-

(continued on page 664)



Two Levels at Piccadilly Circus: How the LCC Design could Look

When the inquiry into the development of the Monico site at Piccadilly Circus opens next week, will the LCC stand by its own idea of two-level circulation with an upper level pedestrian deck, or will it surrender to the developers who timidly reject the idea? We publish these drawings by Raymond Spurrer, based on the plan prepared by the Planning Division of the LCC Architect's Department,

ment, to show how Piccadilly Circus might look in the future if this plan is ever realized. These drawings show that the upper level pedestrian deck can be practical and visually attractive. The ground level view above shows the enlarged centre island turned into a pedestrian piazza, with overhead pedestrian ways linking it to the buildings on the north, south and east, sides of the Circus. The bridge on

the right takes pedestrians safely over the traffic to a building on the Monico site. The Circus remains the centre of the entertainment world, a riot of bright lights

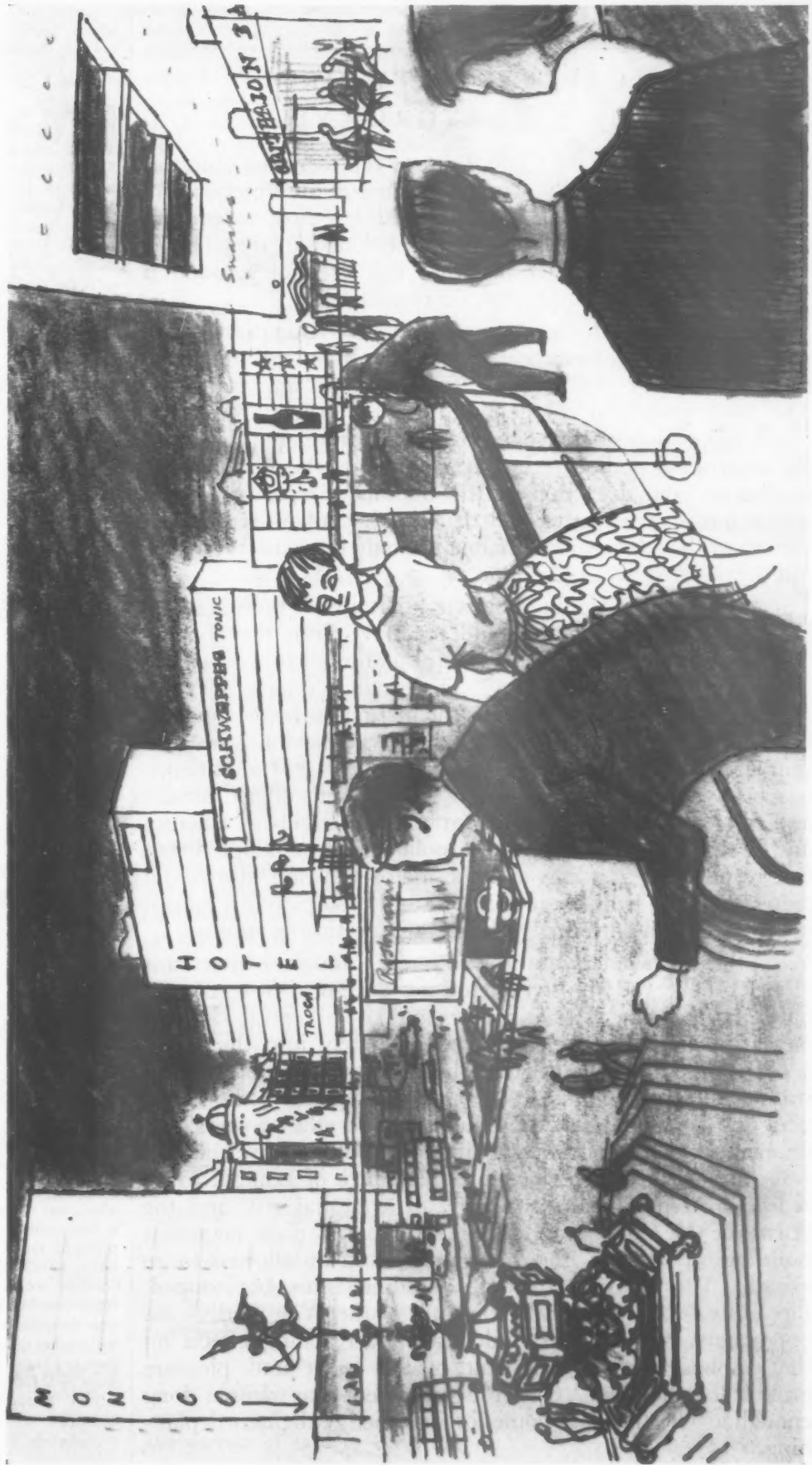
entertainments add to the gaiety and vitality of the Circus. As redevelopment proceeds, the pedestrian walks can be continued up Shaftesbury Avenue, and

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entertainments add to the gaiety and vitality of the Circus. As redevelopment proceeds, the pedestrian walks can be continued up Shaftesbury Avenue, and throughout a large part of the West End. But none of this can happen if Jack Cotton is allowed by Henry Brooke to put the projected building, or anything like it, on a site that is in a key position, both visually and physically. The Cotton building is not only ugly, but it cannot fit into a two-level design, and crams the public into a pavement only 15-ft. wide. If this building is allowed a precedent is set for the piecemeal redevelopment of the West End on an antiquated pattern.

with an upper level pedestrian deck, or will it surrender to the developers who timidly reject the idea? We publish these drawings by Raymond Spurrer, based on the plan prepared by the Planning Division of the LCC Architect's Depart-

the right takes pedestrians safely over the traffic to a building on the Monico site. The Circus remains the centre of the entertainment world, a riot of bright lights which, however, are kept down in height so that they dominate Piccadilly Circus itself, but cannot be seen from all over London. The second view, below, is drawn from the pedestrian upper level near the present Criterion building on the south side of the Circus. It looks across the Circus to Shaftesbury Avenue (background, left) and to the low block that bridges Coventry Street. Escalators carry pedestrians from the tube to the ground and then to the upper level, where shops, cafés and



The Editors

LONDON: CAPITAL CITY OR
SPECULATOR'S PLAYGROUND?

THE decision of the Civic Trust to represent the objectors at the Piccadilly Circus enquiry is absolutely right. Its aims at the enquiry should be: first, to prevent Cotton, Ballard and Blow's published design from being built; and second, to ensure that this area of London is comprehensively planned and developed.

What is wrong with Cotton's offices? We must admit that equally bad offices have been built in London, but they have not been so large (172 ft. high) or on such an important site. The main criticisms of the buildings are: the unpleasantly squat proportion of the tower and its poor relationship with the amorphous podium; the bad planning of the office accommodation; the distortion of the building to provide blank panels for advertisements and the fact that advertisements at the top of the tower will be visible not only from the West End but over a large area of London.

There seems little doubt, however, that if the building had been well-designed, there would not have been the popular outcry there has been against a tall building of this advertisement-carrying type on the site. The JOURNAL's main objection to the whole proposal is that it is the first major redevelopment in this part of the West End, which will inevitably set the standard for subsequent development, and yet no attempt has been made to try and solve the problem of pedestrians and motor traffic. Both on grounds of civilised amenity and good commercial practice, a policy must be adopted that will reconcile pedestrians and the motor vehicle. Horizontal segregation, by pedestrian precincts and motorways, is known to be part of the answer. Vertical segregation is another.

What the Government and the country, through their servant Henry Brooke, the Minister of Housing and Local Government, have got to decide, is what courses to take for central London. Research must be undertaken immediately into the traffic problem (in all probability the solution of the Piccadilly Circus traffic problem lies outside the Circus altogether), the whole plan for London must be restudied, and the powers and financial resources of the LCC investigated to ensure that the ways and means exist to enable the centre of London to be redeveloped in a manner worthy of a capital city and the centre of the Commonwealth. Until that is done no major building on such an important site should be allowed to go ahead. That is why Cotton's building must be stopped. Piccadilly is all too literally the hub of the West End. An opportunity missed here could have far-reaching effects on the whole future development of the heart and pleasure ground of the city. City redevelopment has drifted long enough. The time has come for informed, enlightened planning.

(continued from page 661)

where. The "carpet" and "curtains" are fawn or green. You shudder.

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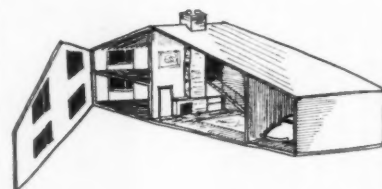
Elsewhere in the window is a toy garage. It has a flat roof for toy car-parking, and a castellated parapet. The main front wall has curved corners and the windows are cut as a long slit to carry round these corners. It is mounted on a flat base, and the whole thing is painted cream. Colour is added by transfers advertising well-known motor products, and two red toy petrol pumps which split the forecourt. A flagpole and a clock grace the highest point of the front parapet. The whole thing screams "1930's" at you.

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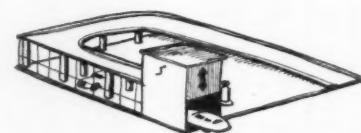
Then a toy railway station attracts attention. Again the inevitable castellated facade. Behind it a curved plastic sheet forms the roof over the platforms. All walls are painted cream except for a stationers' kiosk on a platform. This has brick paper stuck round it. A few colourful posters are stuck on boards, the name of the station is fixed, slightly awry, on the front. Windows are painted on to the walls in long narrow rows, divided up into long, narrow panes. An out-of-scale clock face and the inevitable flagpole complete the illusion of a "Modern" building.

*

What can be done if you do not want your young hopeful to be introduced, so early, to such appalling design? Go on looking and asking, and if necessary start making toys. The dolls' house shown in one sketch was



seen in a provincial toy-shop before last Christmas, colourful and well furnished. The other sketch shows a very simple garage



which was made from tea-chest plywood for a boy, with a few pieces of dowel rod, celluloid sheet and paint. And surely the latest railway stations, like Sandbach, in Cheshire, are models of simplicity and beauty for a would-be toy station. Perhaps, given a little encouragement, our toy manufacturers will make toy buildings as up-to-date as their toy Jaguars. In the meantime we might draw up a few plans in odd moments—does anyone know the "scale" fees for toy houses?

P. O'KEEFFE



PARKINSON'S DISEASE

Does Housing Minister Mr. Brooke think county district councils are likely to be brighter about planning questions than county councils? Whatever his views he is allowing them to grab planning powers (including permissions, advertising and tree preservation) from their senior bodies if they deal with a population of 60,000. In his new regulations he also says that "any district council to which adequate technical advice is available should be left free." What does he mean by "adequate" and "technical?"

Unless the Minister does something to encourage local authorities to employ architect planners in responsible positions at adequate salaries, this sort of move can't be regarded as anything more than decentralization as a political aim.

COTTON ON, MR. BROOKE?

"I can't leave our housing minister without suggesting that he ought to get a better briefing when he speaks in the Commons about Piccadilly Circus. Replying to an adjournment debate on November 26, he said that when the controversial scheme was published last March "it aroused no comment in the Press, in the House or elsewhere."

If he takes a look at this week's *Spectator* he will find, in a four-page article by Bernard Levin, all that he needs to know—and a lot that he would probably rather not know—about the building, including the reminder that this column had some uncomplimentary things to say about it in March. (I said that the tall block looked too squat, the podium was shapeless, the low wings looked accidental, the silhouette was graceless . . .). And he will also see himself quoted as having assured the House that the building was "generally in line with the model showing the whole lay-out of the surroundings of Piccadilly Circus." This really was a very stupid remark, because on the same occasion Mr. Brooke ridiculed the LCC's idea of an upper pedestrian level—something he knew very well the Cotton building hadn't got.

If you're still a bit hazy about the history of the case, and want to mug it up before the inquiry begins next Wednesday, you'll find J. M. Richards' recent BBC talk, printed in this week's *Listener*, and the *Spectator* summary invaluable. Incidentally, the inquiry will probably be even more lively now that the Civic Trust is putting money and ideas into the attack.

ANOTHER LUCKY NEW READER!

Talking of ministers, it was gratifying to find that the new Minister of Works, Lord John Hope, had misunderstood our comments on his Building Exhibition speech—gratifying, because it shows that he, or an adviser, reads us. But let me correct him. We were not distressed—as he suggested at the annual luncheon of the Federation of Associations of Specialists and Sub-contractors) by his appeal for flexibility in specifying materials. On the contrary, we were delighted to hear him advise the use of lightweight blocks instead of bricks for inner-leaves—ignoring the brick lobby. What we sounded distressed about was the government policy of repeatedly switching building restrictions on and off, and thereby creating artificial shortages.

If the Minister and his henchmen continue to read the *JOURNAL* they will find evidence of anything but a con-

servative advocacy of traditional materials.

SOUTHERN CLASP?

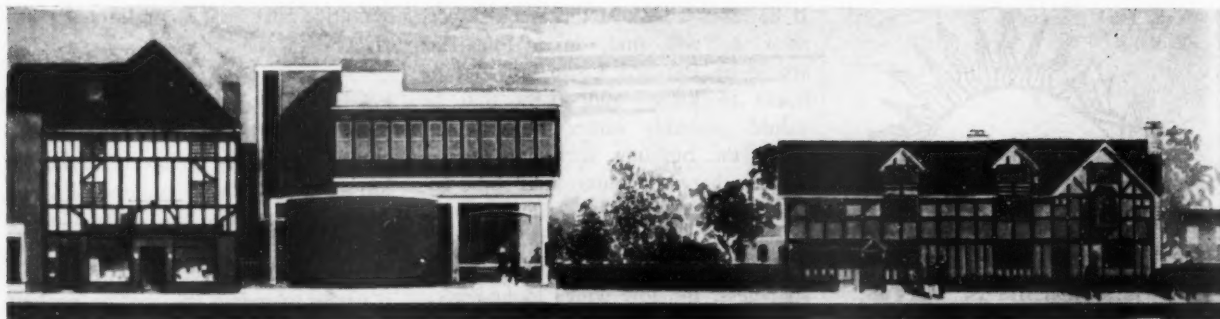
Now that Whitfield Lewis has become Middlesex county architect, leaving his job as LCC housing architect, I'm not surprised that his new department is looking for twenty-six more members. He is out to give the department what it needs to regain the leading position it once had, and one thing he intends to do is to set up a technical information group. Let's hope these changes in a county which is taking on a large programme will lead to development work—and perhaps to a pooling of resources in the south (Kent, Essex, LCC and so on) to match the work done by the northern Clasp counties.

ASSOCIATION OF IDEAS

Had you guessed that the Association of Official Architects is still alive? I hadn't heard it breathe lately, but on enquiring I found it is doing a useful job. Among other things it has had a quiet word with thirty-two local authorities who advertised for architectural assistants when they really needed architects. It has also arranged for architects to be represented—together with engineers, lawyers, finance officers, etc.—on a Grading Sub-committee of the National Joint Committee, and the whole question of grading is being revised by the executive committee. I was interested and appalled to see that

Recently *ASTRAGAL* showed a poor line drawing of an indifferent building which was to be the Imperial Cancer Research Fund's laboratories in Lincoln's Inn Fields. This week he shows the amended design which has been approved (with certain provisos) by the LCC. The architects are Messrs. Young and Hall and recently appointed consultant John Musgrove of the Nuffield Hospitals Trust. Double your subscriptions.





the Grading Sub-committee has come about "primarily through the proposal to place negotiations for Chief Officers' Gradings (other than designated Chief Officers) under the control of the NJC, and not under JNC as in the past." How can the Association hope to convince architects it is doing a good job if it uses such bureaucratic jargon?

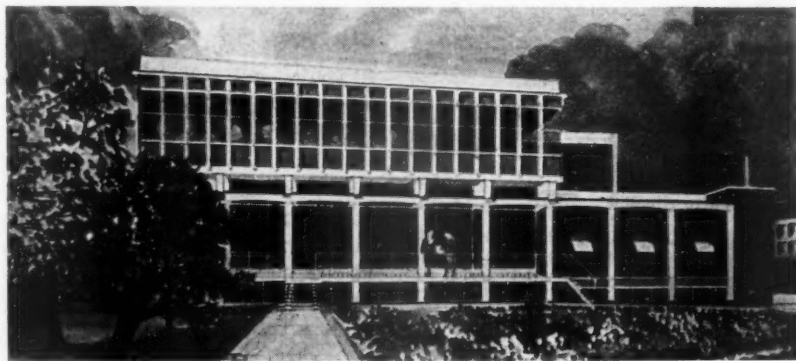
AN INSIDE JOB

The Incorporated Institute of British Decorators and Interior Designers have sent me a pamphlet to show how wrong the Anti-Uglies were to say (AJ, November 12) that they didn't exist. Their members, who include craftsmen as well as designers, aim "to promote, encourage, assist and carry out whatever may tend to elevate the art and craft of decoration in all its branches—and to raise and improve the status, training and qualifications of its members." After four years study, finalists must prepare a scheme for an important room in a public building, and must also "display a general knowledge of methods of manufacture, sources of supply—and comparative costs." I like the last bit, but I'm worried to read that "a knowledge of Architecture as the setting for Period Decoration is essential." By the way, did you hear about the American couple who 'did' York Minster between a change of trains? "O.K. Honey, you do the outside, I'll do the inside: see you here in twenty minutes."

PUNCH WHERE IT HURTS

I'm glad to see that *Punch* is taking more and more interest in design and architecture. Not only has it got a regular column on the subject; it also has fun with topical design news in "The London Charivari." Last week's issue had a piece on Eames, a paragraph on packaging design, a page of Acanthus pictures illustrating "Punch Plans for Piccadilly" (not nearly the best treatment for a subject that really

It is a measure of the general acceptance of modern architecture that even in the heart of the olde worlde, Stratford-upon-Avon, a new building proposed for a site in Henley Street, alongside Shakespeare's birthplace, no longer has to ape Tudor to be accepted. (Pseudo-Tudor, it seems, is no longer acceptable to the layman, although pseudo-Georgian, as might be expected of a more sophisticated style, still has its adherents.) The new building shown, top, in elevation, from the street, and below, from the garden of Shakespeare's cottage, is to be a library, a study centre and the headquarters of the Shakespeare Birthplace Trustees. The Birthplace library and the Memorial library belonging to the Shakespeare Memorial Theatre will be combined in this building, which, it is hoped, will be opened on April 23, 1964, the four hundredth anniversary of Shakespeare's birth. The cost is estimated at £100,000. The architects are Messrs. Wood and Kendrick and Williams of Birmingham.



needs lampooning) and an article by H. F. Ellis, on "The Lovableness of Architects." This article discussed the prevalence of architects in women's magazine stories, where they have replaced "the sons of dukes, RAF pilots, men from Out There, and overworked, rather brilliant young doctors." Ellis goes on to say that "one can see, when one looks into the matter, that there is a sort of lovableness about architects. A kind of cosy, cut-above-the-common-run but not-if-it-doesn't pay idealism that no girl of sense and sensibility should try to resist." Before you pass this by with an amused, slightly self-satisfied grunt, let me remind you that fashions, even in love, change. Not so long ago I was deploring the fact that it was always doctors and authors who were loved in fiction. We may be on the crest of a popularity wave at the moment, but don't let us forget what happens to crests.

ASTRAGAL.

DIARY

Multi-Storey Car Parks. Talk by E. N. Underwood at the ISE, 11, Upper Belgrave Street, S.W.1. 6 p.m. DECEMBER 10

Taste and Assault. Talk by Kenneth Baynes at the Design and Industries Association, 13, Suffolk Street, S.W.1. 12.30 p.m. DECEMBER 10

Collaboration Between the Engineer and the Landscape Architect. Discussion between R. W. Rose and S. M. Haywood at the Institute of Landscape Architects, 1, Park Crescent, W.1. 6.15 p.m. DECEMBER 15

Building Centre Forum—Lightweight Concrete. Edward Mills and A. R. Collins. At 26, Store Street, W.C.1. 6 p.m. DECEMBER 16

Exhibition of High Buildings in London. LCC, County Hall (North Block), S.E.1. UNTIL DECEMBER 19

Exhibition of Sculpture in Ciment Fondu. At the Building Centre, 26, Store Street, W.C.1. UNTIL JANUARY 2, 1960



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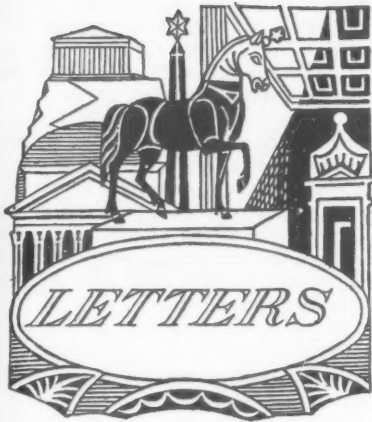
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Jeremy Mackay-Lewis,

Student R.I.B.A.

President British Architectural Students' Association

Geoffrey Robson, A.R.I.B.A.

Colin Rogers

P. Noel Perkins, A.R.I.B.A.

BASA Conference

SIR: The British Architectural Students' Association is holding its annual conference on Architectural Education over the weekend beginning Friday, January 8, 1960, at Churchill Hall, Stoke Bishop, Bristol, 9.

The object of this conference is fourfold:

- (1) To study education in its broadest terms as applied to other faculties in universities and other academic institutions.
- (2) To relate this study of the basic truths of education to architectural education.
- (3) To find out the students' reactions to the Oxford conference.
- (4) To form a BASA policy on architectural education.

The executive have drawn up a series of resolutions which will be circulated to the schools before the conference, for discussion. Any amendments and additions that are made should be submitted to the Secretary at the introductory meeting on Friday, January 8. These resolutions when ratified will form the basis of BASA's policy in architectural education.

Every effort will then be made throughout the country to act on this policy. It is proposed that a joint committee will be formed with the RIBA Board of Architectural Education, and BASA executive to discuss these proposals; meanwhile, students will discuss with their staff how this policy can be worked out in their own school. We believe that there is a process fundamental to all creative activity, and to study this can only lead us to a clear understanding of how we should educate ourselves for this purpose.

To solve any problem there must be a logical process of thought based on:—

- (1) Knowledge and experience, (2) analysis, (3) synthesis, (4) execution of the solution.

The four main papers which deal with each of these factors are being given by eminent speakers on Saturday. They will be followed by general and group discussion.

In these days when the aesthetic as well as the technical fields confronting the architect are so wide and complex, a process of reasoned thinking is even more important than ever if the architect is not to be misled by preconceived ideas and superficialities which lack imaginative treatment based on clear and logical thought.

The architect today has got to use his brain as never before in history and without being taught the basic process of analysis and synthesis how can he hope to grapple with the problems which confront him? His influence is great and his responsibility for the environment which he creates enormous. He must be trained for this heavy responsibility in the best possible way. A course of education should be balanced in relation to the tasks which he is to meet in the outside world, and the development of his personality should be such that he gives confidence to all those with whom he has to deal. We hope, therefore, that the schools make every effort to attend this important conference.

Accommodation has been booked for 100 places only and the cost for the whole weekend will be three guineas. Applications to join the conference should be made to the Permanent Secretary, BASA, The Building Centre, Store Street, W.C.1.

JEREMY MACKAY-LEWIS

President of the British Architectural Students' Association

Two Coventry Schools

SIR: It may be absurdly untimely to refer to an article in the issue of October 29. I have read this several times to see if, in fact, I am misconstruing a rather subtle piece of satirical writing by Mr. Levy (an architect) and Mr. Drake (a quantity surveyor). This article, called "An exercise in cost and programme planning" refers to two thoroughly respectable little schools in Coventry, built in a fairly reasonable time, at a fairly reasonable cost, and starts as follows:

"The schools at Coventry . . . are an interesting example of an approach to design which recognises that the production of an economical and efficient building is an intrinsic part of the architect's duties. This approach, which was first seen at Amersham . . ." (my italics).

Does Mr. Levy really mean this, and if not what does he mean?

I gather from the subsequent cost analyses (which I assume are as free from errors as one can expect in a technical journal) that these schools cost respectively 71s. and 69s. per square foot; that a nursery school costing £9,119 took only five months to build and a primary school costing £47,027 only thirteen months; and that these astonishing achievements were made possible by a team system which discovered amongst other things that facing bricks are suitable for external walls, are durable, and have a pleasing appearance, that plaster is a good internal finish and that timber is a suitable material for single-storey roof structures.

Don't think for one moment that I am criticizing these particular buildings, or that I believe Mr. Ling, who was responsible for them, to be as pretentious and silly as this article suggests; having been involved very closely with systems of prefabrication in the past, I can appreciate the discovery that "prefabrication in building is most successful with small components such as bricks, tiles, drain pipes, etc." (though how one avoids "prefabricating" these objects I cannot imagine).

What I should like to know is whether the authors of this article are so completely ignorant of current work in this country as to be unaware that a number of quite conscientious and intelligent architects have made these discoveries for themselves, have adopted the same rational approach to the use of traditional materials, and have been designing schools for years at least as quickly and economically as the examples they are describing, and even achieving, at times, results which might loosely be called architecture.

GEOFFREY ROBSON

London

Human Filing Cabinet

SIR: What an excellent photograph of Castrol House (AJ, November 26, page 570), and what a pity that the general public cannot see this human filing-cabinet from the same vantage-point (about 100 ft. in the air). I wonder whether by any chance the architects have ever stood on the pavement at the corner of Baker Street (as I do every day) and taken a look at their "vertical rectangular mass" from there? It appears that the white passe-partouting has come loose at the top of the south-east corner and is leaning outwards. At night I have come to hope that the lighting behind all that green glass has not been switched on, because if it has—well, that is what I imagine a skyscraper amusement arcade would look like, were we not (to date, anyway) spared such things.

However—*chacun à son goût*.

COLIN ROGERS

Harrow

New Broom in the Club Room

SIR: You are a little hard, I feel, on the RIBA, whose broom is undoubtedly sweeping many corners in which the dust of centuries has accumulated. It is only fair that I should bring to your attention the fact that their broom is not allowed to be wielded in the RIBA Club room at the Building Exhibition, and that the Conran chairs and Forrest lights, to which you refer, were loaned by the manufacturers to the Building Exhibition organizers, as were all other furnishings. As you will know the use of the room is a facility granted to the RIBA by the Building Exhibition who also meet the costs of providing furniture. It is, therefore, a little hard that Mrs. Montgomery's generosity should thus go unrecognized.

P. NOEL PERKINS

London



RIBA

Plastics in Building

The two-day conference at the RIBA on "the influence of plastics in building" could have been first rate; it was not. Jefferiss Mathews, opening the meeting on behalf of the RIBA, suggested that the discussion deal with the serious effects of plastics on architectural design; with the significance of plastic skin structures, with the applications of air-supported plastic enclosures, with the general consequences of having available materials such as reinforced plastics which are strong in tension.

This was a challenge which remained unanswered and had it not been for an unprogrammed comment by Dr. Makowski of the Imperial College would have been entirely forgotten in the talks. The bemused and bewildered faces which greeted his slides of Geodesic Radar Domes or hyperbolic paraboloid factory enclosures in Texas showed only too clearly that this was a world which the plastics industry in this country considered barely real and certainly as yet irrelevant. Interested as it is in the sale of the maximum possible tonnage now, it may, of course, be right.

Two films shown at the end of each day's discussion did a little to demonstrate something of the possible influence plastics may indeed have on building. On the first day Ionel Schein was over from Paris and introduced a film of his circular Exhibition House built in 1956 and re-erected a number of times since then. On the second day there was a coloured film of Marvin Goody's Monsanto "House of the Future." Both these structures in polyester fibreglass show by their use of curved and continuous surfaces some of the possible forms which a technique dependent on plastics may eventually produce.

The Conference tended, regrettably, to confine itself to the cosmetics of architecture. This was especially true of the two papers read by architects. S. Greenwood, chief architect to John Laing & Sons, described a research programme using polystyrene as formwork for patterned concrete. The end product, a precast concrete panel, differed only marginally in appearance and cost from a similar panel cast from a timber-

lined mould. G. K. Findlay, consultant to Unity Structures Ltd., showed melamine bath panels of silk screened seagulls, polystyrene kitchen tiles and a p.v.c. covered timber window. The last two items had been on view at the Ideal Home Exhibition.

By far the most interesting concept put forward was that as plastics were inherently a costly material their most economic use was in a form which provided the greatest volume for the least weight. The expanded or foamed plastics such as polystyrene or polyurethane satisfied this condition and may therefore show the greatest development in the near future.

Polystyrene, as Dr. Brown of Monsanto pointed out, can be produced over a wide range of densities. Each density has its appropriate use. Thermal insulation is best at 2 to 3 lbs. per cu. ft. while compressive strength increases with density and is about 66 lbs. per sq. in. at 10 lbs. per cu. ft. Boards or slabs of the material can be stuck, nailed or screwed to give heat insulation or rigidity in sandwich construction. A $\frac{1}{2}$ -in. board in the 2-in. cavity of 11-in. brickwork will give the wall a U value of 0.17. If the board is well made it will also be a vapour barrier. It can be plastered or granules of polystyrene can be mixed with cement to make light insulating blocks.

A further structural development has been the combination of expanded metal and polystyrene. The metal is bonded into both sides of the board when it is made and a 2 in. thick panel spanning about 2 ft. just supported Dr. Brown's weight.

A geodesic radar dome designed by R. Buckminster Fuller under construction. The triangular units are polyester fibreglass and are bolted together with nylon bolts so as to give radar transparency.



The foamed plastics are of course not incombustible. Yet only one among all plastics (p.t.f.e. used mainly for roller bearings) is a toxic hazard. As C. W. Welch, the editor of *Plastics*, remarked, all the others are a no greater chemical risk than wood. Moreover the foamed plastics have such low densities that they add very little to the fire load. An inch of polystyrene at the commercially quite common density of 1 lb. per cu. ft. is equal in the amount of material present to the thickness of wallpaper. Such products may therefore need rather different evaluations of fire risk.

W. Thorne of ICI in a paper on "Services" which he aptly defined as those adjuncts of a building least considered by architects causing the occupant the greatest inconvenience when at fault, demonstrated by means of test tubes and hammers the virtues of polythene pipe. These were, reduction of sound transmission for water hammer or tap noise, lowering of maintenance costs and freedom from corrosion. It was encouraging to hear that the considerable use of polythene pipe, about $1\frac{1}{2}$ to 2 million feet per month, meant also a lowering of prices. Half-inch heavy-gauge pipe costs about 40 per cent. less today than in 1951. This trend of improved performance, greater use and lowering of cost holds great promise for the plastics industry. Today 14 main kinds of plastic are manufactured. And the volume production in this country is now one seventh that of steel. So important a range of materials deserves the most imaginative discussion.

HC

Refuse Disposal in Flats

At a meeting at the Housing Centre on December 1, Mrs. P. G. Allen of BRS gave an account of recent user research by BRS into the problem of refuse disposal in flats. Discussion with flat dwellers showed that waterborne systems (in fact the Garchey system) were the most popular, followed, in this order, by chute systems, containers and dustbins. Unfortunately this order of popularity is also the order of cost; and, in fact, waterborne systems are generally considered to be too expensive for most authorities. A small survey showed that the amount of rubbish to be disposed of per flat per week varied between $1\frac{1}{2}$ cu. ft. and 11 cu. ft. but that, when dustbin or container systems were used, 3 cu. ft. was a reasonable figure and, with chute systems, between 3 and 5 cu. ft. The main emphasis in Mrs. Allen's paper was on chute systems and an examination of thirty chutes in flat blocks varying between three and sixteen storeys established the following desiderata: The chute must be straight and in diameter not less than 15 in., but preferably 18 in. The hopper must be 14 in. wide with an entry opening 12 in. by 14 in. and an exit opening (i.e., into the chute) 9 in. by 14 in.

The Chairman, Alan Barton, the General Manager of Birmingham's Salvage Department, added that it must have a high quality glazed lining, that special care must be taken to backfill when erecting and that it should be subjected to a smoke test when completed. He also suggested the insertion of a $\frac{1}{2}$ -in. diameter steel pin in the centre of the hopper openings to stop anyone from putting in anything too large. All chutes must be outside the flats and occupants must be told not to put anything down them after 10 p.m.

In the discussion Mr. Butcher of the LCC Salvage Department reported on experiments which had been carried out jointly by BRS and the LCC in the Shot Tower on the South Bank to test both the effect of dropping refuse from a great height (the tower is 186 ft. high) and the use of a rotating platform beneath carrying the containers. The number of chutes necessary in any block is determined by the size of the container and the frequency of clearing. The object of the rotating container experiment was to test whether, by increasing the number of containers which can be filled between clearances, you can reduce the number of chutes. The experiment has proved a success. Mr. Butcher also discussed the cleaning of chutes. In early days the LCC used to install a tap at the top of each chute, but this was found unnecessary as ashes appear to scour the sides effectively. Dirt is confined to the bottom few feet and it has been found necessary to send cleaning gangs once every three months.

The economics of the Garchey system was discussed and a speaker pointed out that this system was not intrinsically more expensive than the others, but that, since no department can convert all blocks to the system at once, they must continue to pro-



This "refuse roundabout" has been designed by the LCC Architect's and Chief Engineer's departments in two sizes, with six or eight containers, for receiving refuse from the chutes of tall buildings. Only one chute need be used as, even when fully loaded, the containers can be turned by hand, while the chute (18 in.) is wide enough to prevent the blockages which tend to occur in 15-in. pipes. Trials in the Shot Tower, on the South Bank, have proved that it is successful, and economical.

vide the ordinary refuse service at the same time.

Lastly, Mr. Harris of the North Thames Gas Board, discussed the increasing use of gas incinerators in America for on-the-spot destruction of refuse. He said that the gas industry were anxious to develop these over here. It was calculated that, to burn up the average family's 25 lb. of waste per week would require $1\frac{1}{2}$ therms and would cost 3s. per week if paid for by the tenant, 2s. per week if paid for by the authority on a bulk agreement. Mr. Money of the Electrical Development Association urged the greater use of garbage grinders; but the local authority members present seemed unanimous that the extra cost which both of these systems involved could not easily be met.

NEWS IN BRIEF

Two Competitions

An international competition approved by the IUA is announced for redevelopment in the city of Tunis. The first prize is 5,000 dinars. The competition closes on October 18, 1960. Particulars from Le Secrétaire d'Etat aux Travaux Publics et à l'Habitat (Concours pour une étude d'aménagement dans la Ville du Tunis), Xite-Jardins du Belvedere, Tunis.

The first premium in the Halesowen competition (announced in our issue of November 26) is £1,000.

New Church Buildings

The Church Commissioners announce that information about post-war buildings is available in their office at 1, Millbank,

Westminster, S.W.1, for inspection by architects, clergymen and others who are interested in the building of churches, halls, and dual-purpose buildings. The record includes outline plans or photographs and brief particulars of construction, cost, heating, lighting, equipment, etc., in handy form. A pamphlet has also been prepared under the title *New Church Buildings: Notes on Procedure* for distribution by diocesan secretaries among those who are directly interested in particular building projects.

Course in Timber Engineering

The Timber Development Association, in conjunction with the Mid-Warwickshire College of Timber Education, has arranged to hold a weekend residential course on Timber Engineering at Westham House Residential College, Barford, Warwick, from January 15-17.

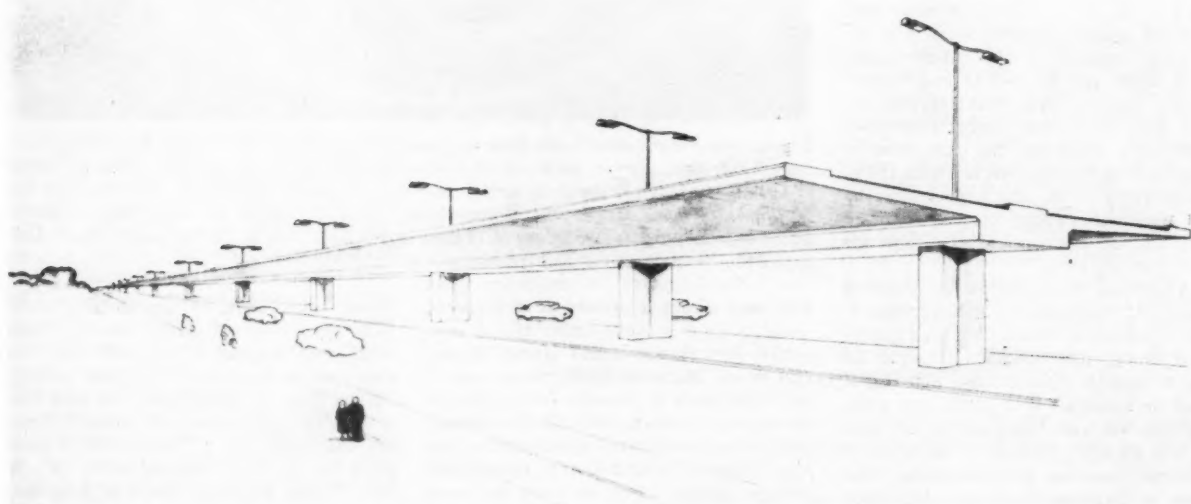
The fee for the course is £5 5s. 0d., inclusive of meals and accommodation. Designers and builders interested in attending the course should write as soon as possible for application forms and further details to the TDA Midlands Regional Officer, Chamber of Commerce Buildings, 94, New Street, Birmingham, 2 (Midlands 1079).

Stand Designers

The designers of the following stands at the Building Exhibition were incorrectly named in earlier issues. The correct attribute is as follows: Montague Meyer Ltd., designed by Lionel Slater; Ruberoid Ltd., Zinc Development Ltd. and Adamsez Ltd. by DM Design Ltd. (The Dewar Mills Associates).

PRESTRESSED CONCRETE ELEVATED ROADWAY COMPETITION

The result of the Prestressed Concrete Development Group's competition for the design of an elevated motorway, based on the use of prestressed concrete, is as follows: First (£500), W. F. G. Crozier, M.Sc., M.I.C.E.; J. D. Bennett, B.Eng., and C. G. Kerry. Second (£200), E. O. Measor, B.Sc., A.C.G.I., M.I.C.E., M.I.Struct.E., and A. Bailey, O.B.E., F.R.I.B.A. Third (£100 each), F. Graham, A.M.I.C.E., R. W. Hobbs, B.Sc., A.M.I.C.E., and Dr. Ing. Ulrich Finsterwalder and Dpl. Ing. E. Paulus. The assessors were H. C. Adams (MOT), C. P. Andren (Traffic Engineer), A. G. Jury (City Architect, Glasgow), Col. G. W. Kirkland (President, PCDG) and Sir Herbert Manzoni. Competitors designed (a) an elevated road on the same lines as an existing road carried above it on piers in the central dividing strip, and (b) a length of elevated road short-circuiting a section of the lower road, so that a more economic arrangement for the supports could be adopted.



General view of first prize-winning design for main elevated motorway, by Crozier, Bennett and Kerry; sections on opposite page.



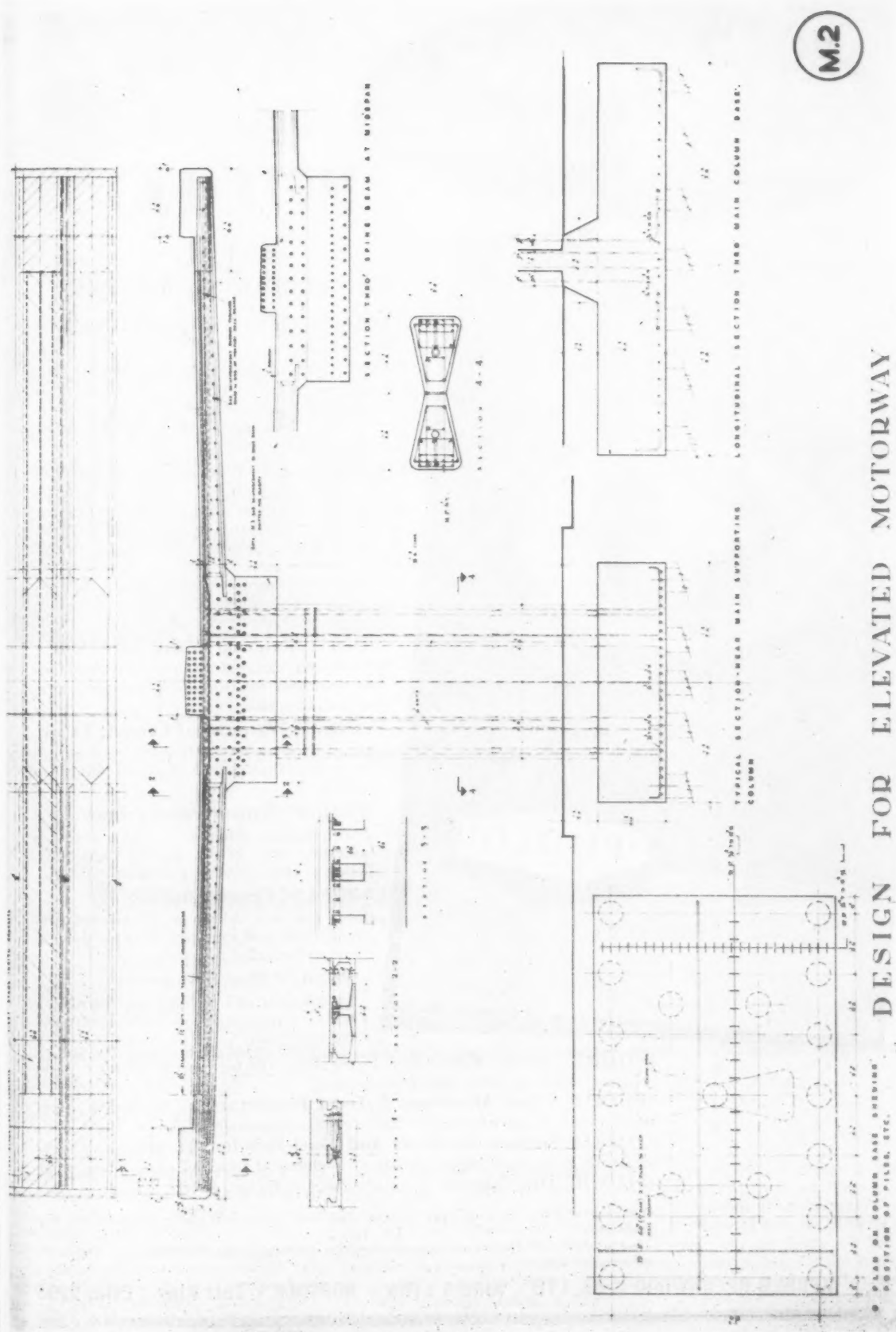
General view of secondary short circuit elevated motorway, by Crozier, Bennett and Kerry.

The assessors give the following reasons for awarding the first prize to the design illustrated on this page and the next:

This entry is recommended for the first prize because it is a clean design, aesthetically acceptable, structurally good and provides a reasonable traffic solution for a design speed of 50 m.p.h. It is, however, not well presented but the Assessors feel that this

should not be allowed to detract from its merits. In the report submitted the transverse units of the motorway are designed for all possible loading conditions. The stresses employed are satisfactory in all the cases considered, but there may be a critical section about 7 ft. from the end of the cantilever. The spine beam is stressed after the in-situ section of the deck has been poured.

The composite effect is not considered in the calculations, which assume that the whole of the prestress goes into the spine beam. Otherwise the calculations are thorough and give a satisfactory analysis of torsional and point load problems. The parking section of the motorway is designed in reinforced concrete on an ultimate load basis.



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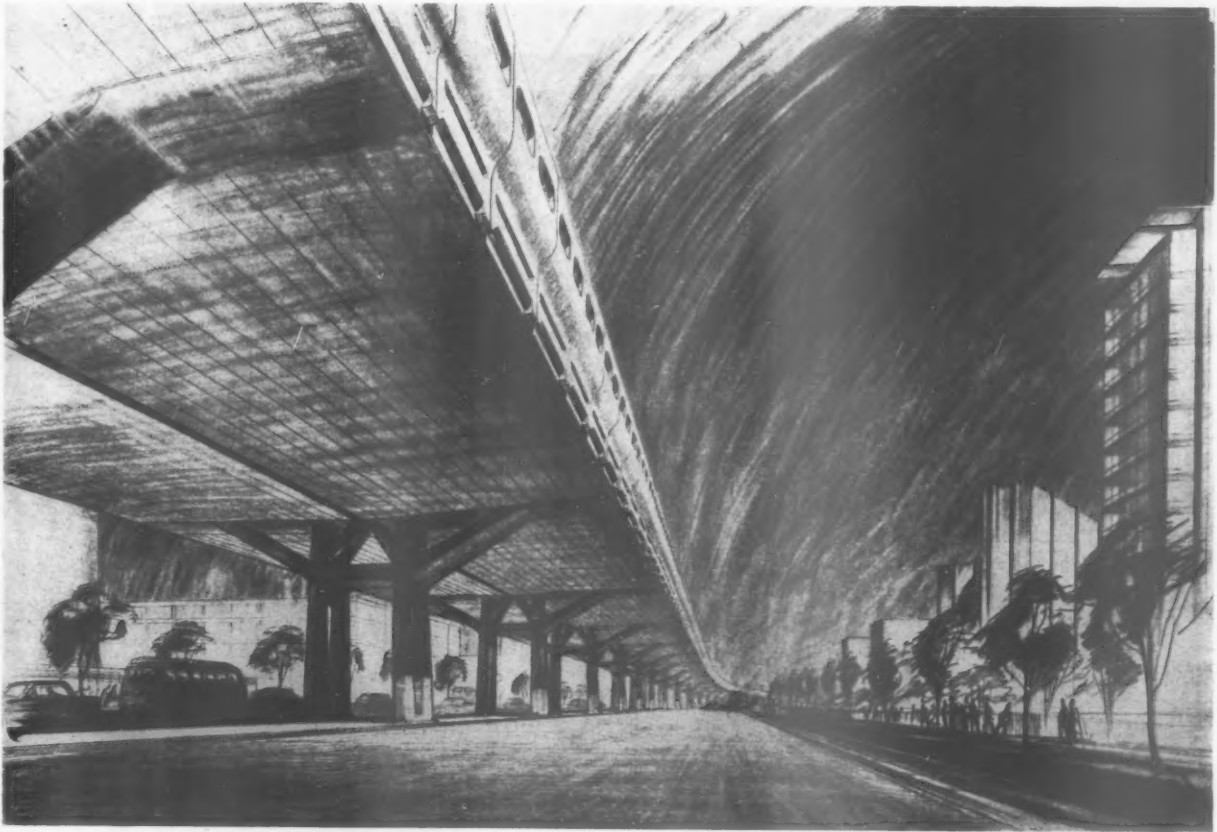
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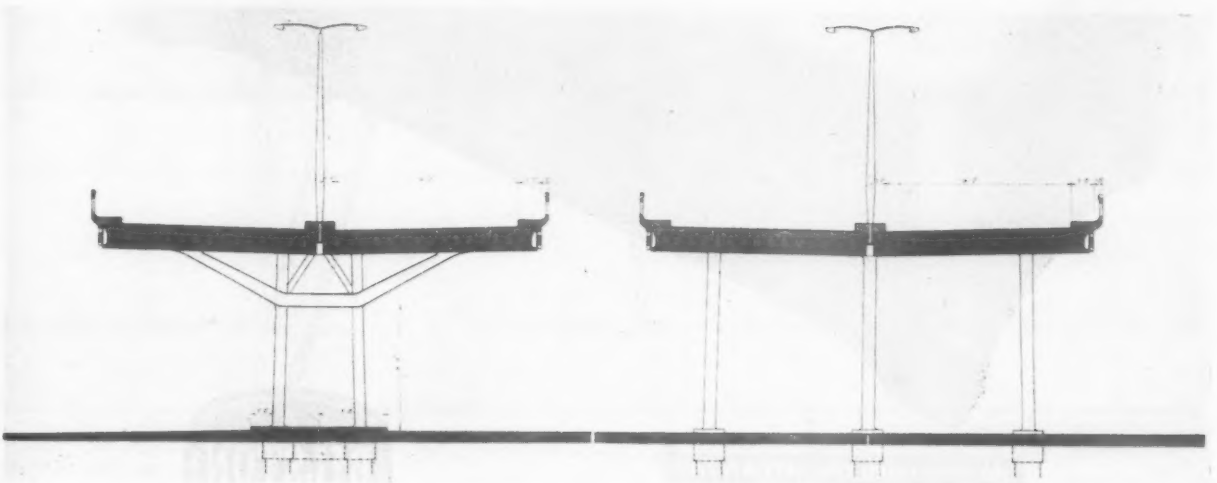
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ELEVATED ROADWAY COMPETITION: SECOND PRIZE-WINNING DESIGN



Perspective of the second prize-winning design by Measor and Bailey.



Cross-sections.

Second prize (£200) is awarded to E. O. Measor, B.Sc., A.C.G.I., M.I.C.E., M.I.Struct.E., and A. Bailey, O.B.E., F.R.I.B.A. The assessors' report says: This entry is recommended for the second prize because it is structurally sound and provides the best traffic solution among the entries, as well as being well presented. Aesthetically it is considered poor in that functionalism appears to have been taken

too far with the over-elaboration of elements. Some clothing of these elements would improve the design and it is considered that the parapets are unpleasantly heavy in appearance. From the structural viewpoint the design is simple, employing pre-stressed I-beams side by side longitudinally with an in-situ topping. A large transverse pre-stress is used to counterbalance the effect of the four 6-ton excess wheel loads

and an analysis employing distribution coefficients is provided. The supporting frame is designed by strain energy methods ignoring bending moments in all the members except the top beam of the truss. The calculations generally are thorough, but high stresses are used in places and the losses assumed in the pretensioned units appear to be low.

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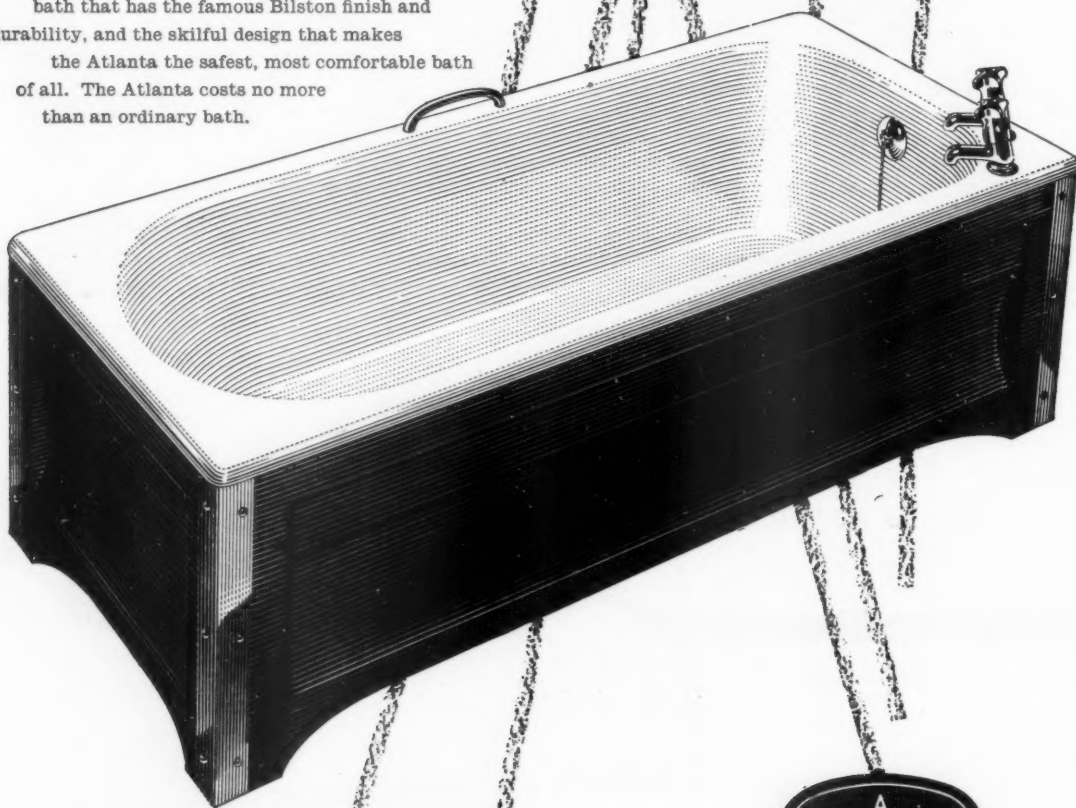


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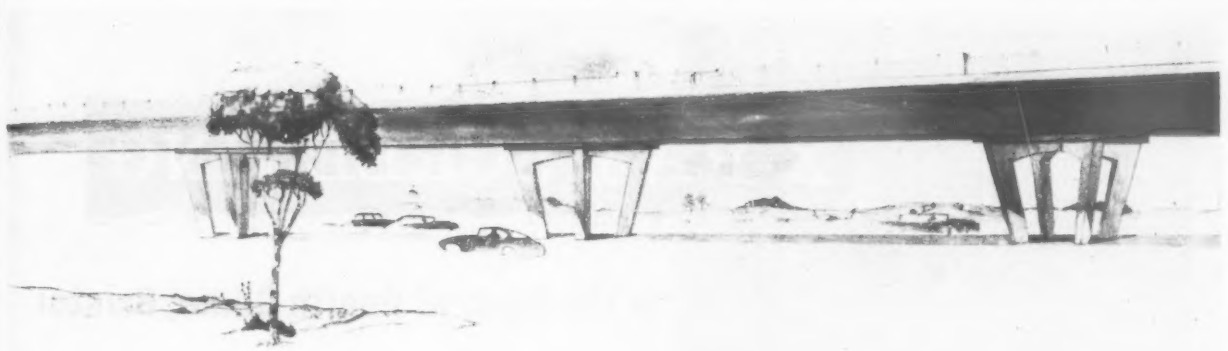


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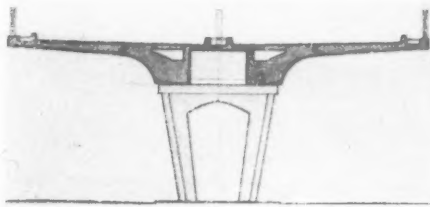
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ELEVATED ROADWAY COMPETITION: THIRD PRIZE-WINNING DESIGNS



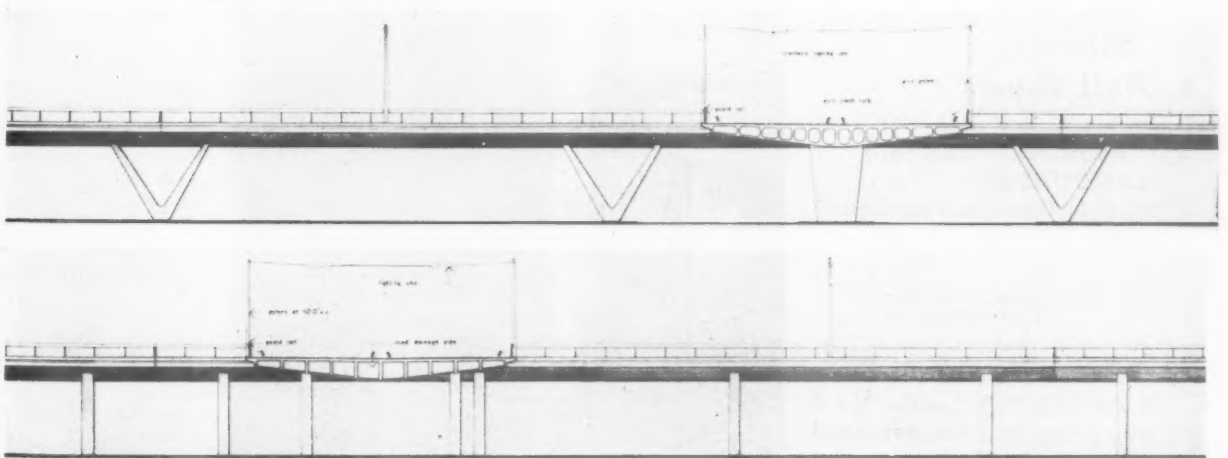
Above and right, perspectives and cross-section of design by F. Graham.



Three third prize-winning entries (£100 each) appear on this page.

The design by F. Graham, A.M.I.C.E., above and right, is criticized by the assessors for several errors in the calculations: they say that the supports might not appear unpleasant individually, but in continuation would certainly appear fussy. Some amendment to the column design would be necessary because the case of loading on one side (2 lanes) of the motorway has not been considered.

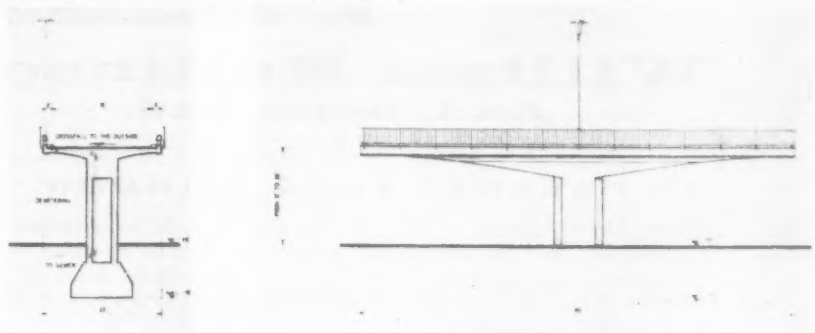
Below, elevations and sections of design by R. W. Hobbs.



Of the design, above, by R. W. Hobbs, B.Sc., A.M.I.C.E., the assessors say "the very simple form of this design with its antipodal supports is aesthetically pleasing and produces reasonable solutions to the traffic problem."

The design, right, is by Dr.-Ing. Uhlrich Finsterwalder and Dpl.-Ing. E. Paulus. The assessors say: "This design is unique structurally and aesthetically satisfactory, but erection may be difficult since it is a prestressed mushroom-type construction using 100 per cent. in-situ concrete. The traffic arrangements are not good in that short weaving lanes are provided and no design speed is stated." The picture shows a ramp structure.

Below, cross section and elevation of design by Finsterwalder and Paulus.





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THE INDUSTRY

From the industry this week Brian Grant describes methods of fixing hardboard, a timber pest advice centre, oil storage tanks, joining polythene tubes and sealing hook bolts

Fixing fibre board

Practice Note No. 1 from Fidor deals with nails and nailing of both hardboard and insulating board. When the board is to be covered with a skim coat ordinary clout nails are quite satisfactory as long as they are rust resistant. A general rule is that nailing should start at the centre of the board, working outwards to the edges, with the ends nailed last. Boards fixed vertically should be nailed downwards from the top, and again the edges fixed last. While many different types of nail have been used in the past, recent tests at BRS recommend a single pattern round steel wire nail with a flat cleanly undercut head, known in the nail trade as gimp pins, the only proviso is that they must be rust resisting, galvanized, sherardized or cadmium coated. It is also interesting to note that the habit of driving nails diagonally to give greater holding power is not recommended, as it is considered not worth the risk of bent nails and hammer damage to the boards. Marks made by hammer heads are far more unsightly and difficult to hide than nail heads, and for this reason it is suggested that nails should be driven home with a punch. (Copies of the leaflet from *Fibre Building Board Development Organisation Ltd., Stafford House, Norfolk St., London, W.C.2.*)

Advice on pests of all kinds

Some years ago Rentokil started the Woodworm and Dry Rot Centre in Bedford Square, and this has now moved to Dover Street where there is a considerable display of ways of dealing with timber pests, whether insects or fungi, as well as methods for the control of rats, mice, cockroaches and flies,

not to mention weeds. It appears that Messrs. Rentokil have been absorbed by the Disinfection Service, which has a number of branches all over the country. The new Dover Street premises contain plenty of space for displays and there is also a cinema and lecture room for audiences of architects, surveyors and students. (*The Woodworm & Dry Rot Centre, 16, Dover Street, London, W.1.*)

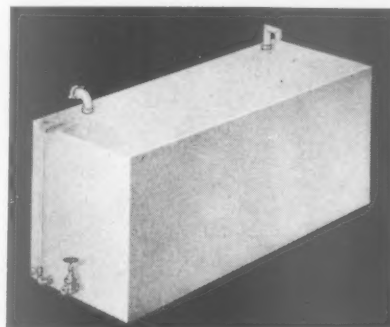
Tanks for oil storage

Now that so many manufacturers are producing oil fired boilers it is useful to know that Harveys have a full range with capacities from 50 to 1,000 gallons, with prices starting at £5 13s. The tanks are all of welded mild steel with the necessary internal stays, and are made in several different standard shapes, so that there should be no difficulty in finding a shape suitable for handling through doorways or fitting into an awkward space. Various vent pipes, man-hole covers and level gauges have also been standardised. (*G. A. Harvey & Co. (London) Ltd., Greenwich Metal works, Woolwich Road, London, S.E.7.*)

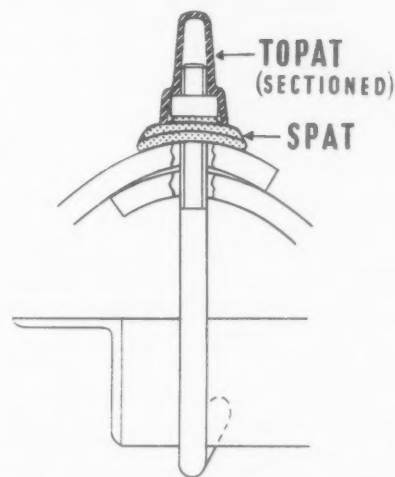
Joining polythene tubing

Various methods have been evolved for the jointing of polythene tubing, including the compression fittings which were originally developed for copper, but the different sizes and tolerances of polythene tube have made it essential to use various inserts, liners and rings to make an efficient joint. Yorkshire are now producing a range of Polystantor fittings specially designed for polythene tube. The double grip principle of the Instantor fitting has been retained, and there is an additional push fit liner which is simpler to insert than a loose liner. The fittings are made to the tube size, i.e. a $\frac{1}{2}$ in. fitting for $\frac{1}{2}$ in. tube, and are suitable for use with Polyorc A. and Plastronga tubes to BS 1972 and also for the newer Plastronga range to British Plastics Federation standard 42, though with the latter special inserts are needed to replace the standard liners.

The joints are quite simple to use, as it is only necessary to cut the tubes square and push them over the copper liner until they butt against the shoulder in the bore of the fitting. Hand tightening followed by one or one and a half turns of the nut with a spanner completes the joint. (*Yorkshire Imperial Metals Ltd., PO Box 166, Leeds.*)



Harveys oil storage tank.



The Topat cap for covering nuts and bolts to prevent corrosion

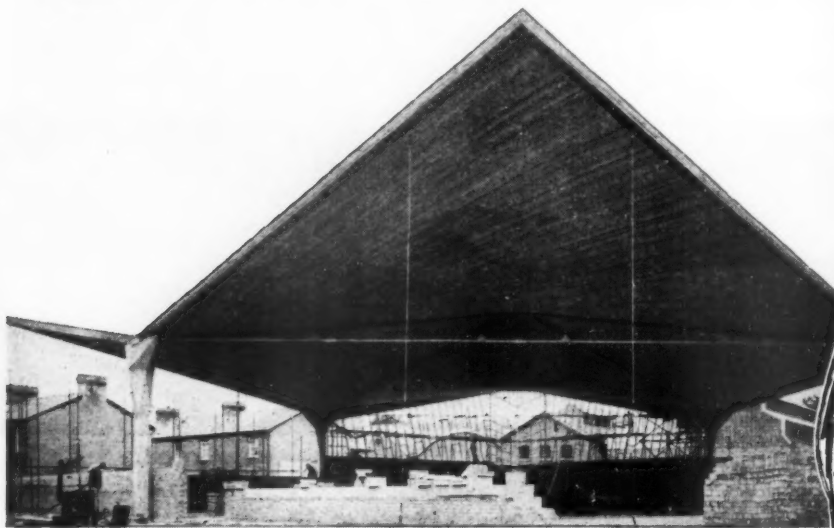
Sealing hook bolts

Some time ago Dowty Seals produced the Spat washer for use with hook bolts, and this has now been followed by the Topat cap, which covers the nut and the end of the bolt. This should stop corrosion in rain or industrial atmospheres. There should thus be no working loose of bolts, and no unsightly rust stains. Both Spats and Topats are in plastic and are made in $\frac{1}{2}$ in. and $\frac{3}{8}$ in. sizes. Prices are less than 1d. each even when bought in small quantities. (*Dowty Seals Ltd., Ashchurch, Glos.*)

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19 CONSTRUCTION: DETAILS

lift slab technique on new office block in Sydney

Just over eight years ago the AJ reported the erection of two buildings in the USA by the lift slab method.* At the time O'Neil Ford, the architect for these buildings, visited this country to lecture on the system, describing it as "the first really significant advance in the use of reinforced concrete." Since then lift slab has become an accepted technique in the USA but, until quite recently, no attempt has been made to use it in this country. The Royal Exchange Assurance new head office for Australia is nearing completion in Sydney where lift slab technique is well established, and, as it will be the tallest building in the world erected in this way, we have asked one of the architects, Kenneth McConnell of McConnell, Smith and Johnson, to describe its progress and the problems encountered.

* AJ January 18 and June 14, 1951.

The Royal Exchange Assurance building in Sydney, now in course of construction, occupies a site between two street frontages, of which one, Bligh Street, is approximately 20 ft. above the other in O'Connell Street. The two frontages are approximately parallel and run from s.w. to n.e. Building regulations permit a height of 150 ft. on each street frontage which entailed a stepping up for two half floors at one end.

The O'Connell Street frontage is 64 ft., and at a distance of approximately 125 ft. from O'Connell Street and 90 ft. from Bligh Street the site widens on the s.w. side to an average width of 100 ft. making a deep "L."

The most efficient plan for this site was to recess the lifts, lift hall and main stairs into the foot at the inner angle of the "L," allowing horizontal communications

Fig. 1. The Royal Exchange Assurance Building from O'Connell Street with all of the floor slabs lifted and in position. Steel for the service core, constructed in traditional steel frame is being swung in by crane.



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technical section

to pass through from end to end of the building, and on all but ground levels giving an "L"-shaped area of office space, broken only by the lift wells. All services including three staircases, lavatories and vertical ductwork were naturally grouped next to the lift shaft at the inner angle of the "L" to the south-west. Two light areas required by building regulations were planned on the north-east boundary.

In this form the building lent itself to a regular grid of 18 ft. \times 20 ft. bays, and was originally designed for *in situ* flat plate construction in order to give unimpeded passage above false ceilings to air conditioning ducts and other services.

To connect the two street levels and ensure efficient loading of the lift services at one main level, a dual escalator was planned next to the south-west bound-

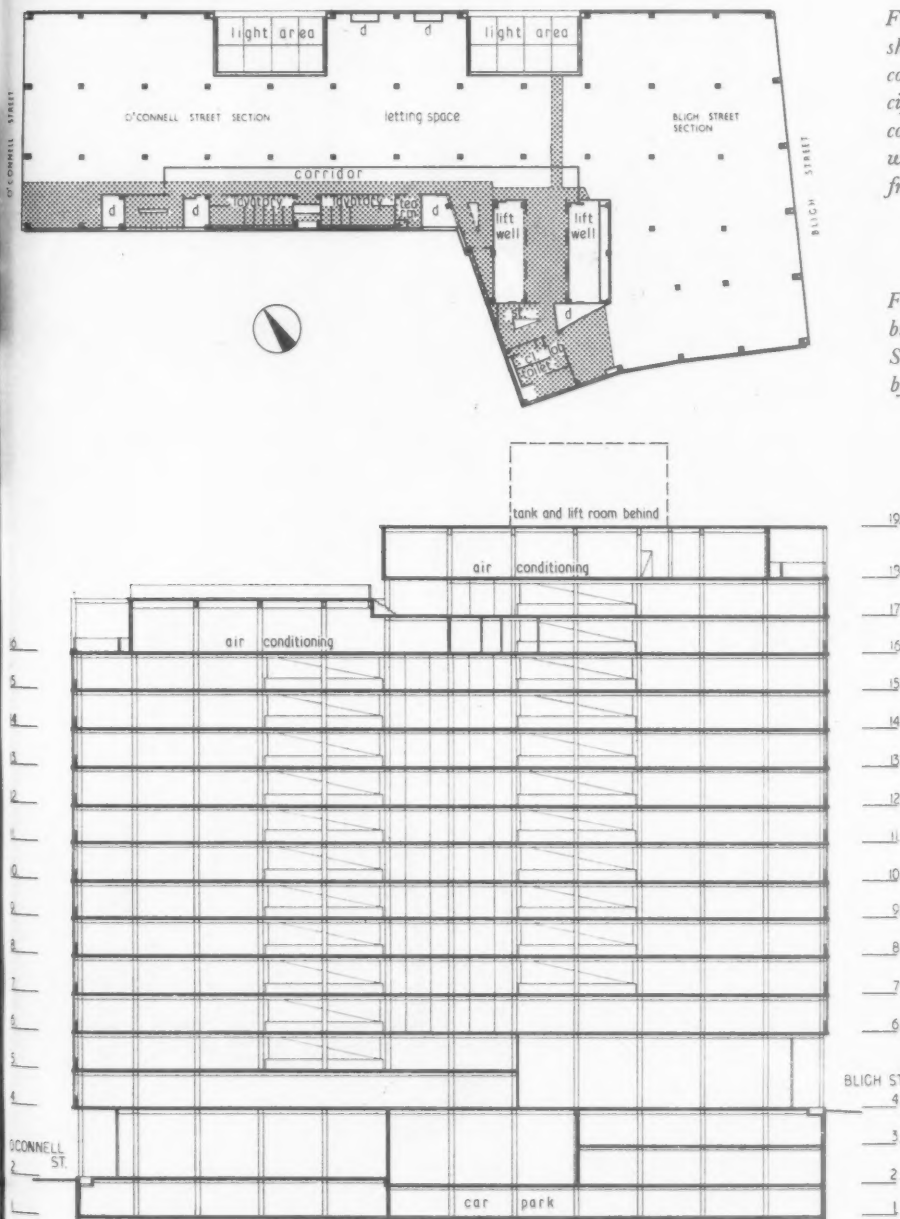
dary, in the space underneath the service block on typical floors.

While the early planning of the building was in progress, the first lift slab structure to be built in Australia was under way, and shortly afterwards a building of some 10 storeys was erected in Sydney by this method. Woolcott, Hale & Bond, structural engineers, were asked to report on the possibilities of this method in respect of a much taller building. After study it was appreciated that the peculiar shape of the Royal Exchange Assurance site with its square block of lifts and stairs in the angle made the building particularly suitable for lift slab construction in spite of its greater height, since the services block provided a convenient central stiffening core for the whole building.

Lift slab construction differs from *in situ* flat plate

Fig. 2. Typical upper floor plan showing the two sections which were constructed on the "lift slab" principle. The service core of the building containing lifts, stairs and lavatories was constructed with traditional steel frame.

Fig. 3. Long section through the building from O'Connell to Bligh Street showing the floors constructed by "lift slab".





*Tulze Hill School.
Architect to the London County Council, Dr. J. L. Martin,
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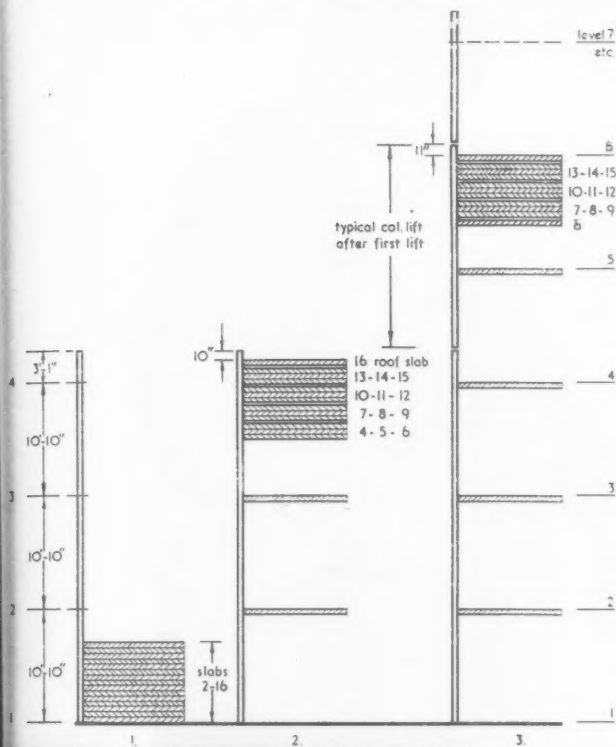


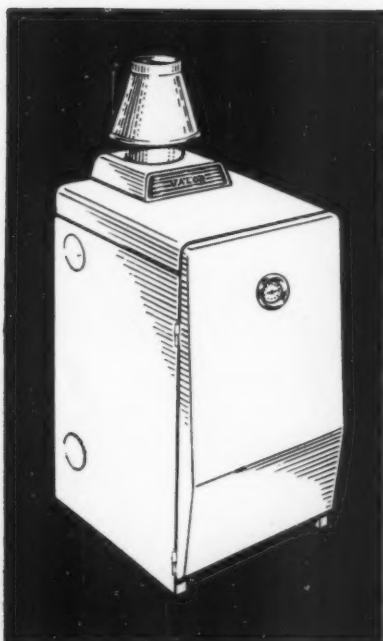
Fig. 4. A diagrammatic section showing the sequence of lift slab operations: 1. Slabs poured at ground level, first column lift in position. 2. Slabs lifted to top of columns dropping off bottom-most slab at each floor on the way. 3. Next column lift in position.

construction mainly in that the supporting plates are replaced by steel collars which can slide up the columns, and that the floors are all poured at ground level, one on top of the other, and then lifted in batches by hydraulic jacks, one jack operating two lifting rods on each column, to their final position, where they are first wedged and then welded to the columns. This means that, especially during construction, there

Fig. 5. Slabs for the O'Connell Street section in the background lying poured up to level 16. Slab for level 8 of the Bligh Street section being completed. Only one of the columns in the foreground has its full quota of lifting collars threaded.



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technical section

is not the same lateral stability, and careful bracing is necessary, particularly across the width of the structure. Such bracing would be simply provided in this building by the services block provided that this block was built with a steel frame with diagonal bracing across the back of each lift bay.

On a preliminary study it appeared that a saving approximating to six months in construction time could be made if the lift slab method were adopted, and that this, combined with other advantages would more than cover any possible additional cost.

Lift Slab of Australia Limited have a monopoly of the patent rights in the country and claim a number of advantages to be gained from using this system of construction. Firstly formwork costs in labour and material are reduced to the forming to the edges of the slabs and any necessary cut outs and reinforcing sleeves. Secondly, the absence of formwork saves the cost of salvaging, sorting, cleaning, clearing or burning. Shores, T-jacks, column clamps, lattice bracing and other gear necessary to *in situ* concrete work is eliminated. Thirdly, labour costs in placing the reinforcing steel are minimized as this work is carried out at ground level and also hoisting gear for the steel is not needed. For the same reason the cost of pouring concrete is considerably reduced. Again, by lifting the roof slab first, work can proceed under cover and dry storage of materials is facilitated. Electrician's and plumber's horizontal runs can be placed and anchored to the reinforcing steel before pouring and lifting. Also the work is claimed to be quieter with the noise of formwork erection and hoists eliminated. After the separating and curing compound is applied to each floor, chalk lines on the slab for lay-out work are reproduced on the underside of the upper slab. Subject to the designer's approval, materials and equipment can be lifted with the slab. Also, it is claimed that much greater accuracy in the alignment of sleeves and in the establishment of floor levels is possible.

It was clear that some of these advantages would not apply in this case. For instance the laying of conduits, etc., would be carried out later under the slabs, and the advantage of the smooth underside would be lost because of the proposed false ceilings. In respect of another claim, it is only in the case of the top slab that materials can be lifted on the slab, and, because of working space requirements, only a limited amount of material can be so placed and lifted.

However, the advantages appeared to greatly outweigh the disadvantages and after careful study it was decided to call tenders from eight builders for a lift slab job, allowing alternative tenders for pouring the floors *in situ*.

In the case of one tenderer an alternative tender for *in situ* flat plate construction was given, and this tenderer stated that he could carry out the work in the same time either way; however, his tender was very much higher than that of the lowest tenderer, the only one of the eight who had previous experience of the lift slab method.

The contract was let to the lowest tenderer, James

Wallace Proprietary Ltd. on a period of 21 months, on the basis that the first steel for the framed section would be delivered on November 1 and the first lift slab columns on December 1, 1958.

The building was originally designed to have a car park for 30 cars at the Bligh Street end at Level 3, beneath the Bligh Street ground floor level, which is Level 4. After tenders were called, however, the Sydney Stock Exchange proposed to take space on Levels 1, 2, 3, and 4, and in order to accommodate them it became necessary to take the car park down to Level 1 and instal a car lift from Level 3 to Level 1.

This entailed a complete redesign of the steelwork in that part of the building, including several columns of the framed steel section. Delivery of these columns was thus delayed by many weeks, and the only columns which were delivered within six weeks of the nominal contract starting date were for the 26 lift slabs at the O'Connell Street end.

Excavation was complete and foundation piers laid by the end of November, 1958, except for an access ramp from O'Connell Street.

The builder's original plan of operation was to erect the first six floors of the framed steel section and mount a crane thereon which could work the site from both ends for the pouring of the slabs. Because of the delay in the delivery of the framed steel this plan had to be changed and the whole of the erection of the first lift of columns and the pouring of all floors had to be carried out from the lower end, an access ramp being left unexcavated along the south-west side. Prior to pouring it was necessary to form all under-floor drainage channels including such portions of the sewer lines as were under the area covered by the two sets of lift slabs. These were poured in two sections, slabs at the O'Connell Street end being 45 ft. x 150 ft. long and having 26 lifting columns, while the other at Bligh Street end was 100 ft. wide x 80 ft. deep with 25 columns. The columns for the first lift were approximately 35 ft. in height and those for further lifts 21 ft. 10 in., the height of two floors.

Following the pouring of the blinding slab the forming of the O'Connell Street slabs was begun, and these were completed at an average speed of two and a half floors per week. By means of a monorail circuit (see Fig. 9), by mid-March the whole of the O'Connell Street stack of 16 slabs was completed and cured, while 12 of the 16 Bligh Street slabs were poured.

The sequence of operations for pouring was extremely well organized. The steel fixer transferred information from the drawings with coloured chalk to the newly poured floor in readiness for a dawn start the following morning to place 20 tons of rods in about nine hours. This was followed by the setting up of the monorail and edge forms in readiness for another dawn start, to pour and finish 200 cub. yds. of concrete before 3 p.m. The last item was a spraying of two coats of parting compound, as soon as the surface could be worked on. Laying of steel was further simplified by the marking of the rods with four sets of coloured tags corresponding to the four colours used

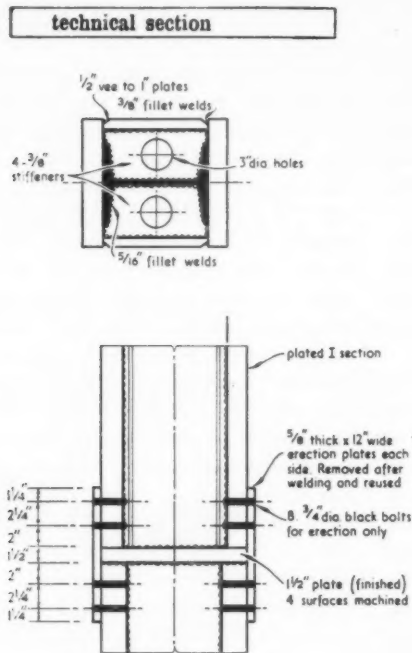


Fig. 6. (top) plan of boxed I section column; (bottom) detail at junction of column lifts.

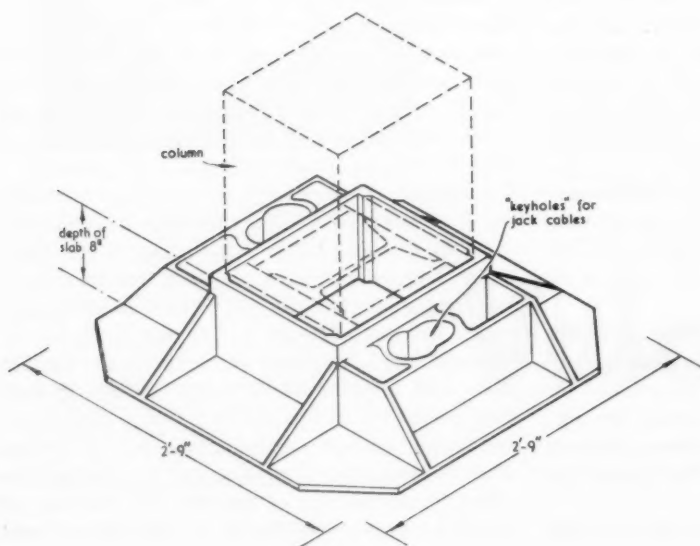


Fig. 7. A typical cast steel collar which is threaded over the top of the column before the pouring of the slabs.

on the engineers' drawings, thus distinguishing the four layers of reinforcement.

A plasticizer was used in the concrete to promote cohesion and workability during placing, and reduction of shrinkage during curing and drying out.

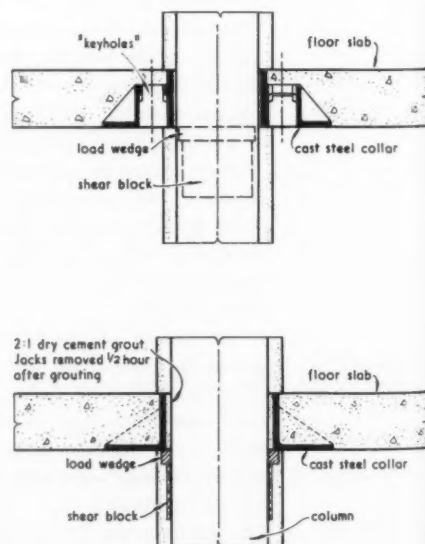
At this stage the jacks were placed in position on the 26 O'Connell Street columns, and the first few slabs were lifted, leaving a space between the lifted slabs and those on the ground through which the ready-mixed-concrete lorries were run in to complete the pouring of the remaining Bligh Street slabs.

Meanwhile, the central framed steel section containing the lifts and two stairways had been erected up to Level 6, including the diagonal bracing, and was being concreted in readiness for union with the lifted slabs. A column held laterally at the top will support four times the load of a free standing column and so the roof slabs were lifted singly each time to provide this support to enable the jacks to lift the remaining floors in batches of three.

As soon as the last Bligh Street slab was poured the first O'Connell Street "lift" began again, and was completed by mid-April. The jacks were then transferred to the Bligh Street columns, and the first lift at this end was completed well before the end of April, the jacks then being transferred once more to the newly added O'Connell Street columns.

At the Bligh Street end owing to the entry for the car ramp, and the necessary space for the car lift, the three lowest levels were part floor only. The open portions were blocked up level with the surface after each pour, to the extent by which any slab was to overhang that below. This meant that columns around the car entry were, after the first lift, left unsupported

Fig. 8. (top) section through lifting collar showing "key holes" for jack cables; (bottom) transverse section through lifting collar.



technical section

laterally for almost their full height. It was necessary before the second lift began for some permanent and some temporary bracing to be built into this area, otherwise the columns would have been unbraced for a height of 50 ft.

Partly, no doubt, due to this temporary lack of lateral support, and partly to the outward lifting sequence of the jacks (each jack lifts half an inch at a time, groups of jacks lifting in sequence), there occurred at this stage, early in May, a contingency which caused some delay and not a little concern.

The three collars set in each slab for the three columns next to the elevators were three-sided supporting collars only with one side open, and were not used for lifting.

Each normal lifting collar is supported at its various stopping places by two wedges over shear plates one on either side of the column; but the three part collars were supported by wedges on one side only. During the week-end following the lifting of the first stack of these slabs these three supporting wedges rolled outwards from the columns, the whole stack of slabs moving about $\frac{1}{2}$ in. outwards away from the three columns and towards Bligh Street.

The slabs were pulled back as far as possible by steel cables and winches and extra pieces were welded onto some of the part collars to hold them in position until the next lift. The columns for the second lift were placed exactly in line with the slightly leaning lower columns, and during the period of the second lift the slabs came back into their proper position, and instead of the single wedges and three part collars were now supported on both sides after each lifting operation.

It soon became apparent that the estimated rate of lifting was not being maintained. One of the main reasons for this appeared to be that the slabs were much larger in area than those handled in any previous work, so that there were many more jacks to attend to, with consequent delays every time a jack needed attention. Also because of the heavier loads the actual lifting sequence took a longer period, so that the average rate of lift came down to under 2 ft. per hour. Another factor was that the jacks had come direct from another building without being given their regular maintenance.

A further cause of delay was that the builder had mounted a crane on the Bligh Street roof slab as soon as it reached Bligh Street level, and this crane, which was being used for hoisting further framed steelwork into position, was frequently in the way of the mobile trolley used by the lift slab operators to mount and adjust their jacks. There were many other contributing causes, including the fact that the lifting contractors' business was expanding and they were having to use operators with less training in a very specialized field. The lifting contractors now admitted that they had under-estimated the time required for the total lift by several weeks. Though this did not necessarily mean a delay in the whole building operation and did not affect contract time, it was serious in so far as delay in lifting was preventing the builder from following up to full capacity with his other trades.

Following several conferences, the lifting contractors agreed to work triple shifts including week-ends until they had achieved a sufficient margin to ensure that they were not delaying the proper progress of the work. The position by mid June was that the first three lifts at both ends were complete, the upper slabs being now 76 feet from the lowest level, the slabs up to level 6 being dropped off at their final levels and all slabs up to level 4 linked with each other and with the framed steel section. The columns for the fourth lift at the O'Connell Street end were in position, and the jacks in position ready to lift. By the end of June, the fourth lift, bringing the top slab to approximately 100 ft. from the lowest level, was completed. Meanwhile, the erection of the narrow strip on the south-west boundary, which was used as a ramp, was proceeding at as fast a rate as possible to catch up with the remainder.

Although this section did not affect the erection of the lift slab or central portions, it was desirable that the remaining slabs and stairs should be poured, *in situ*, as soon as possible after the lifting of the main sections, in order that finishing trades might work on floors as a whole rather than in sections.

As fate would have it, the rock beneath the small unexcavated portion proved to be of poor quality, and great difficulty was experienced in obtaining the necessary bearings. This could well have become a further cause of delay to the job as a whole, although the lifting operations proceeded without interruption. By mid-July, the fifth lift at both ends had been completed, so that levels 1 to 12 were *in situ*, leaving five slabs at the O'Connell Street end, and seven at the Bligh Street end still to be positioned.

The 3-ton crane mounted on the Bligh Street roof slab was utilized throughout from its progressive levels for the erection of the framed section, by this time nearing completion. A 2-ton crane rising with the O'Connell Street slab performed the necessary lifting of the column sections at that end. It was, towards the end of the whole operation, no mean task for the contractors erecting steel to keep the necessary margin between the erection of the columns and the lifting of the slabs.

It is possible that, had the lifting contractors been able to maintain their estimated schedule, the erection of the steel could have been a factor of delay. This all the more in the early stages, because the column splices for the first few lifts were not accurately matched at the work shop before delivery, and a considerable amount of time was wasted in grinding the heavy surfaces on the job, to the exacting requirements of the Sydney Regulations which require no more than 1/5000 of an inch over less than 30 per cent. of the bearing area.

The lift contractors began work on the lift shaft at the end of May and the air conditioning contractors began fixing the ducting beneath the slabs in mid July. Plumbing work and brickwork were well under way in the erected framed area around the lifts and elsewhere at the lower levels. As each slab reached its final position light plate girders were bolted between the columns of the two frontages taking up most of the space between

technical section



Fig. 9. Pouring one of the early O'Connell Street slabs. Ready mixed concrete is carried from the lorry by dollies along a monorail. This permitted the pouring of a full slab before midday. The following day the next set of collars was dropped and reinforcement delivered and placed on the next floor. The pouring rate of two slabs per week was speeded up to three per week on the Bligh Street section.



Fig. 10. Jacks in position on the tops of the columns for the final lift of the Bligh Street section.

floor and cill. These at once gave the necessary transverse stiffness to the structure at either end. As soon as these two opposite slabs on any level were in position forming was placed between them, and the two slabs linked to each other, and to the vestibule of the main lift bay. As soon as this was done, the structure up to that level was at least as rigid as would have been the case had the structure been poured *in situ*.

Openings for the passage of air conditioning ducts were made during the pouring process, and conduit holes at 4 ft. 6 in. centres were left for electrical connections to all floors from the false ceiling space.

On August 15, the last slab was lifted to its correct level. There was one further delay only, due to the fact that one of the three columns on which the wedging of the collars had given trouble previously, was erected out of plumb at intermediate levels. This pushed the slabs forward once more as they were lifted at the Bligh Street end, and the resultant lean had to be corrected by pulling the slabs back into place. This was quite simply done in two operations by two hydraulic jacks placed horizontally first at an intermediate level and then at the top floor level, the bolts connecting the offending column to the steel frame section having been removed to allow the column to right itself under pressure.

Conclusion

While this pioneering structure appears to have given conclusive proof that a building of this height can be erected by the lift slab method at little if any greater cost, and in a shorter space of time than would be achieved by normal methods, the following important lessons were learned.

1. Unless automatic control improves the direct handling of the jacks, it is better that slabs should be kept to a size requiring a smaller number, say 12, lifting jacks. In the case of the Royal Exchange Assurance this would have entailed four main stacks of slabs instead of two, with twelve or thirteen columns to each. The to and fro lifting sequence could have been maintained with the same total number of jacks, two sets of slabs being lifted at a time instead of one. There would have been four junctions to be made between the slabs instead of two.
2. Columns should be assembled in the workshop as a check on the accuracy of bearing surfaces at the splices, with the column lengths accurately lined in their final relation. This will prevent delay in fitting on the job due to the need for grinding bearing surfaces.
3. Jacks should always operate from the top of the column, from which it follows that each collar will completely surround the column, and will be lifted and wedged on both sides of the column.

It follows that no section of the lifted slabs will or can be affected by any error in the framed section, to which slabs are joined only by a pouring strip and that only after their final position has been checked.

The final advantages will not appear until it is seen to what extent the various trades have been able to profit by the opportunities, provided by the method, of early access to all parts of the structure.

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WESTERN GENERAL HOSPITAL,
EDINBURGH

designed by
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Regional Hospital Board of Scotland

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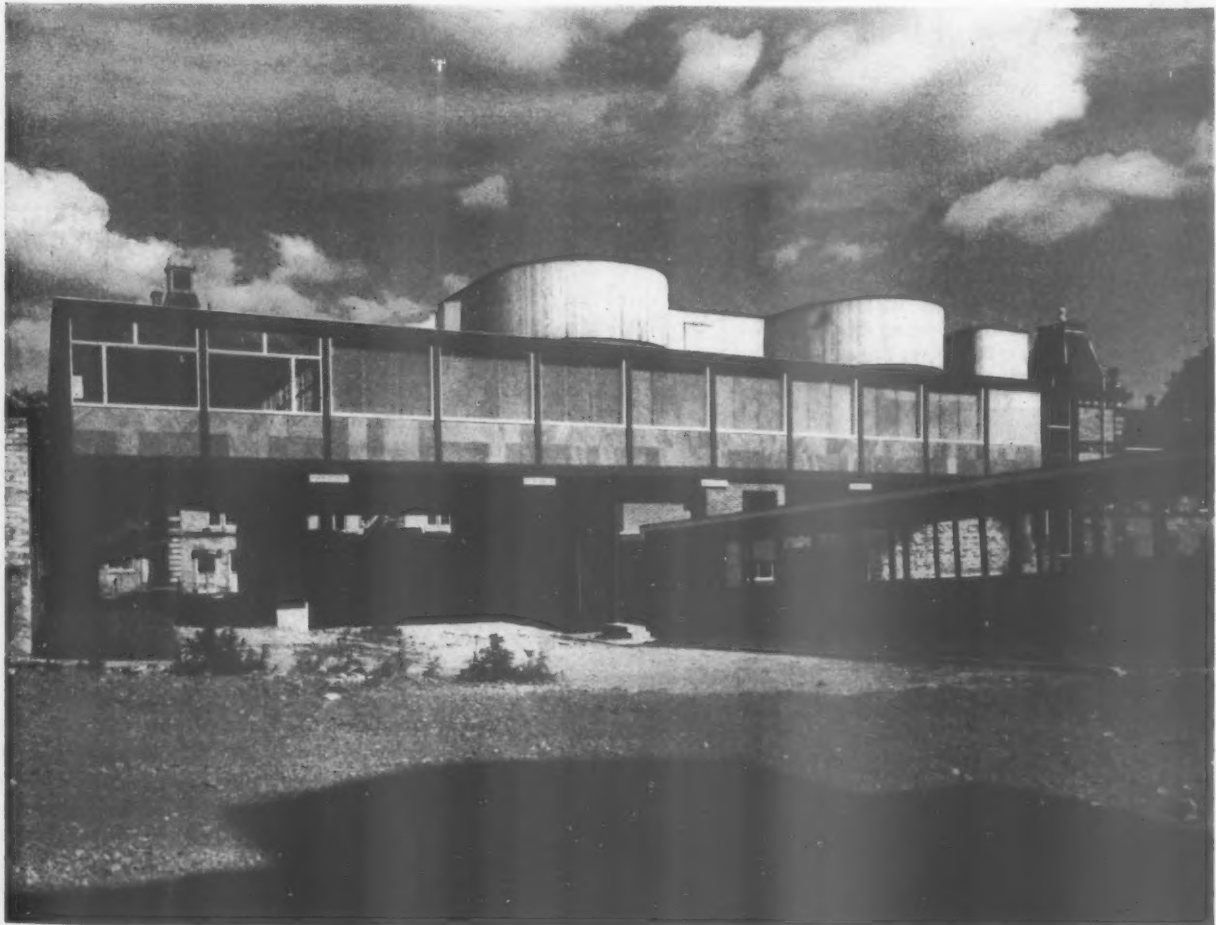
JAMES GENTLES and SON
BLYTH and BLYTH
DONALD SMITH, SEYMOUR and ROOLEY
The Regional Engineer

8th File No. (94)

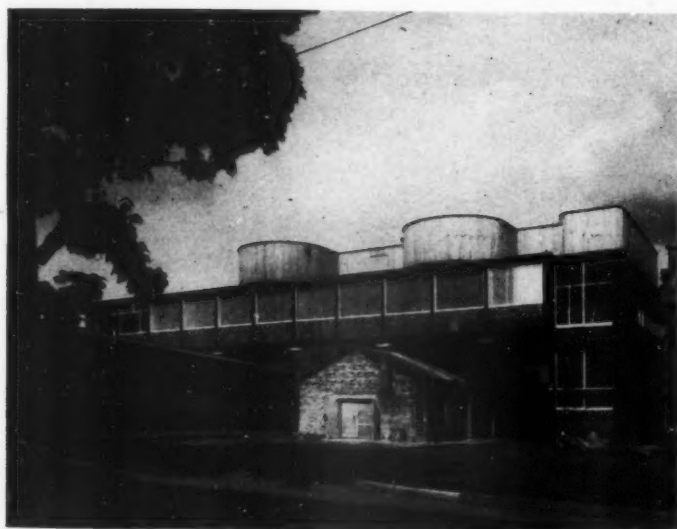
UDC No. 725.5

This first phase of a new operating theatre block is a specialised and inevitably expensive building, made more so by a restricted site and unusually complex client's requirements. Exceptional conditions required it to be built up in the air, so to speak, and there is evident endeavour to exploit this situation visually in the design of the r.c. frame and cantilevers. Materials throughout are of the highest quality and very various, so one might expect this to be a relatively costly building—which it is.

From the west. The link corridor running into the centre of this elevation leads to the Teaching Unit and neuro-surgical wards.



building illustrated



Above, close up of the north end of the western elevation, showing the main cantilevers, which also enclose extract ducts running from the operating theatre skirting level to the main r.c. spine beam and thence to the roof. Slate spandril panels, white painted galvanized steel window frames, charcoal grey painted concrete and untreated red cedar vertical boarding to viewing galleries and plant house on roof.

Left, view from the south-west, showing frame structure carrying the new theatres over the old theatre below, which had to be maintained in operation throughout the building contract. Rooms at first floor level, reading from left to right, are as follows: staff common room (no blinds), plaster room, anaesthetics room, operating theatre, dirty wash-up room, operating theatre, X-ray viewing room and dark room, with permanent blackout behind glass, and staircase.

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Roof
36' 7"
First
Grou

analysis

CLIENT'S REQUIREMENTS

Two sets of twin general operating theatres with ancillaries, as part of the general development scheme for the Western General Hospital. The theatres to be built in the central circulation area between old and new developments, and adjacent to the existing theatre, without interrupting work therein or circulation. The theatres to be built in two phases, one pair at a time, for financial reasons. The plan of the theatre block to be capable of being reversed at a future date when the proposed new ward block is built to the north of the site to replace the present hospital including the surgical ward block, to the south of the theatre site. Each pair had to constitute an architectural unit on its own, because of the delay before the second phase is built, and equally the final block must be a unit.

PLANNING AIMS

It was decided that this somewhat formidable brief could only be met by building the new theatres at first floor level above the existing theatre complex. Originally the scheme provided in addition for a central sterilizing department to be located under part of the theatre block, but this was subsequently omitted by decision of the Regional Board. The first pair of theatres were required to have viewing facilities for students, and these have been provided by glazed cupolas above the theatres which give a direct and (with field glasses) detailed view of the operating table below. The scyalitic (*i.e.*, theatre) lights are wired for sound and the surgeon can comment on proceedings to the gallery above. The arrangement of the theatre is conventional with circulation divided into clean and dirty areas: one central dirty corridor will serve both pairs of theatres when these are completed. Each theatre has its own anaesthetics room and there is a central scrub-up, sterilizing room and dirty wash-up to serve each pair.

A small X-ray and Dark Room is attached to one theatre with a wall mounted arm for use over the operating table. A plaster room and post-operative unit with sluice room is provided, and main changing rooms and theatre sister's room are grouped along the core of the building. There is a common room at one end for doctors and surgeons. Access at present is from a ground floor hall off the corridor system at the south entrance, where stairs and a bed lift lead to the theatre level. Subsequently entry will be at the north end of the dirty corridor, by the common room and post operative suite at theatre level. Further plant rooms are located at ground floor level beside the main hospital linking corridor.

SUMMARY

Ground floor area: 1,474 sq. ft.

Total floor area: 9,724 sq. ft.

Type of contract: Scottish National Building Code.

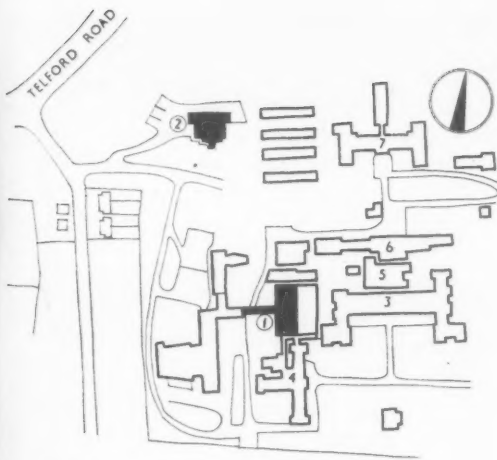
Tender date: September 1955.

Work began: January 1956.

Work finished: January 1958.

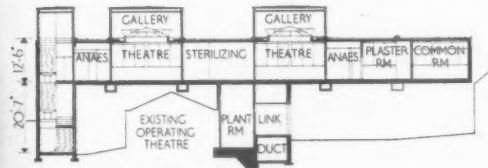
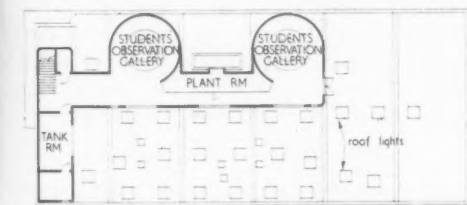
Final contract price of foundations, superstructure, installations and finishes: £80,530.

Final contract price of external works, including drainage, and ancillary buildings: Deferred and not included.

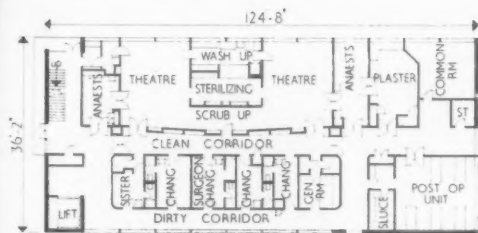


Site plan

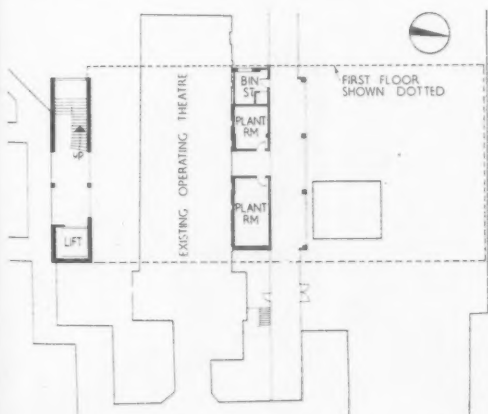
KEY: 1. New operating theatres. 2. New boiler house. 3. Main hospital block. 4. West block. 5. Kitchens. 6. Stores. 7. Nurses home.

Cross section [Scale: $\frac{1}{4}$ " = 1' 0"]

Roof plan



First floor plan

Ground floor plan [Scale: $\frac{1}{4}$ " = 1' 0"]

building illustrated



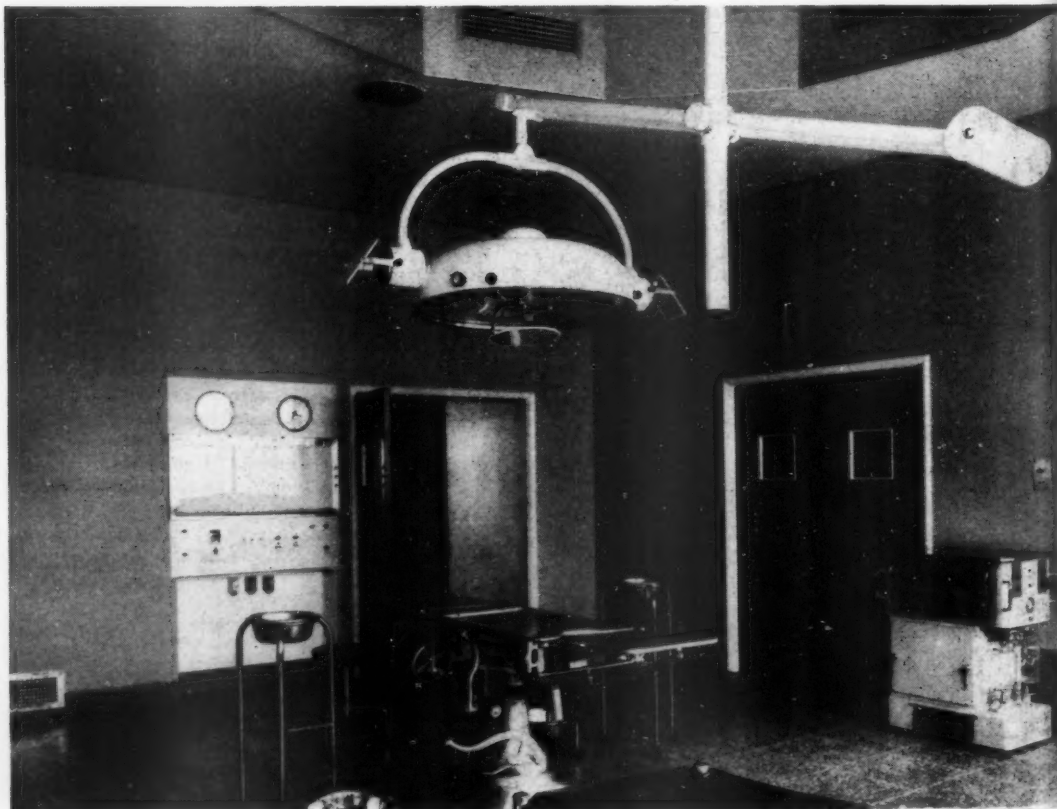
Opposite, the south-east corner, which contains stairs and lift hall. The small balcony at the first floor allows operating staff to get a breather without leaving the vicinity of the theatre. The temporary corridor, on right, leads to the surgical wing.



Left, entrance hall with bed lift in the background and main link corridor opening off to the right. Note acoustic tile ceiling, utility strip, timbered upper splayed walls, terrazzo covered floor and aluminium-faced lift doors.

Left, autoclaves in the sterilizing room, with lens glass rooflight above, white ceramic wall tiles and grey-green terrazzo floor. The hatch to the left opens into the dirty wash-up room; doors on the right enclose instrument cabinets.

Below, one of the operating theatres. Walls and terrazzo floor are grey green; elsewhere it is white, with aluminium and chrome fittings. A microphone connecting with the viewing gallery is located at the foot of the main support for the scyalitic light arm. The anaesthetics room is through the double doors on the right.



analysis

	s	d
Preliminaries and insurances	3	11½
Contingencies		
None in Scottish building contracts.		

Work below ground floor level	6	3½
Excavations, uphill, bottoming, d.p.c.s tanking, brick in outer walls. R.c. bases and foundations.		

STRUCTURAL ELEMENTS

Frame or load-bearing element	22	3½
Reinforced concrete columns and beams, post-tensioned cantilever main beams necessitated by the large spans dictated by the programme of building at first floor level over existing facilities. Central spine beams contain the main services distribution runs. Hollow cantilever ribs form extract air trunking.		

External walls	10	3
11 in. cavity brickwork, with facing brick externally on main walls.		
Penthouse: stud framing and cedar lining, with 1-in. riven Broughton Moor green slate on concrete spandrels.		
Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{0.68}{1}$		

Windows	6	2½
Purpose-made galvanized steel outer casements, aluminium inner casements in theatres and main ancillaries.		
Ratio: $\frac{\text{windows}}{\text{floor area}} = \frac{0.19}{1}$		

External doors	1½	
Flush ply with cedar lining to outer face.		
Ratio: $\frac{\text{doors}}{\text{floor area}} = \frac{0.005}{1}$		

Upper floors	7	6½
Span: 17 ft. with 20 ft. cantilever projection from supporting spine.		
10 in. <i>in-situ</i> reinforced concrete and hollow tile cantilever.		
Area: 6,607 sq. ft. Superload: 80 lb./sq. ft.		

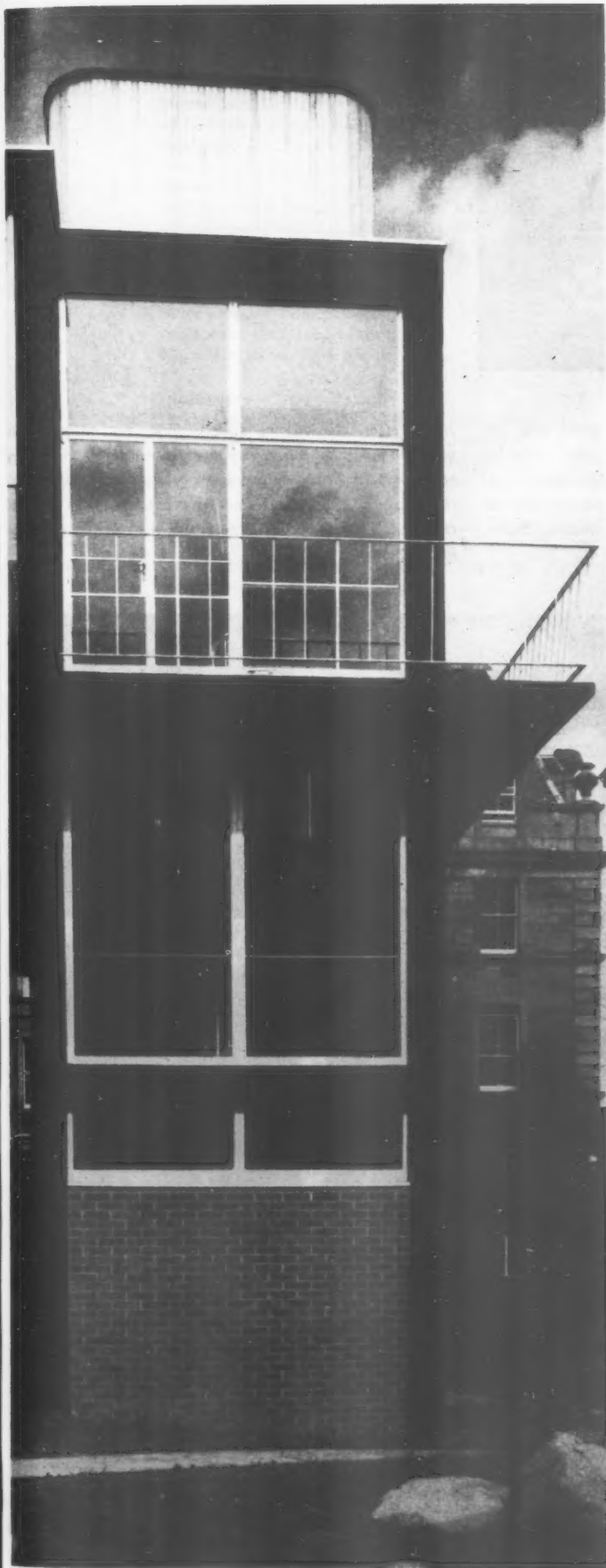
Staircases	9½	
<i>In-situ</i> reinforced concrete.		
One staircase. Width 4 ft. 9 in. Total rise, 33 ft.		

Roof construction	10	1½
8-in. <i>in-situ</i> reinforced concrete and hollow tiles.		
4-in. average vermiculite screed.		
Flat timber roof on penthouse.		
Area of each type: main roof, 610 sq. yds.; timber roof, 200 sq. yds.		

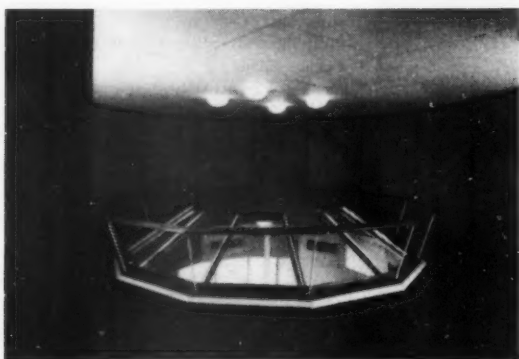
Rooflights	2	7½
<i>No. of lights</i>		<i>Area</i>
34 square dome lights		1,110 sq. ft.
1 concrete lens light		180 sq. ft.

Glazing	1	9
Double ¼-in. polished plate. Internal theatre windows obscured by sandblasting.		

Total of structural elements: 61s 8½d

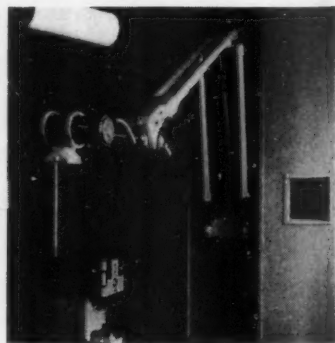


building illustrated



Above, the viewing gallery, which has a royal blue lino floor, white insulation board ceiling and flat varnished ply wall panels. The lighting is grouped above the timber-faced top of the cupola, so as to avoid any interference with the lighting for the operating staff below in the theatre. Below, detailing shows a welcome restraint.

Below right, the viewing gallery from the theatre. The induction air grilles can be seen on the perimeter of the viewing gallery cupola. Cupboard doors seen behind the operating table contain X-ray equipment, bottom right, extended from the wall cupboard. This is believed to be one of the two such machines in the country.



analysis

PARTITIONS AND FITTINGS

Internal partitions

4½ in. brick, 1,030 sq. yds.; Standard partition
60 sq. yds.

Screens

Staff room and changing room, glazed screens
with plywood, laminated plastic and metal clothes
lockers therein.

Internal doors

Flush plywood with hardwood edging. Theatre
doors faced with stainless steel.
No. of single, 36. No. of pairs, 1.

Ironmongery

Double action floor springs to theatre suite, brass
butt hinges, Swedish cylinder mortice locks and
latches, s.s. backing plates, and engraved perspex
nameplates.

Fittings

Lockers, sink cupboards, shelving, pipe boxes,
instrument cupboards, glass shelves, curtains and
shower rails.

Total of partitions and fittings: 12s 4½d

FINISHES

Floor finishes

Type of finish	Area in sq. ft.	Price per sq. yd.
Terrazzo	3,384	25s. 9d.
4·5 lino	3,492	27s. 6d.
6·7 cork	275	30s. 0d.
1 in. grano	414	8s. 6d.

Skirtings, terrazzo, lino, coved.

Wall finishes

Plaster, terrazzo in w.c.s and sluice room.
Timber panels in hall.
Tiles in cupboard of sterilizing room.
Plywood panels in penthouse.

Ceiling finishes

Plaster.
12-in. × 12-in. acoustic tiles.
insulation board.
Soffit of first floor sprayed with asbestos for
insulation purposes.

Roof finishes

3 layers bituminous felt with chip finish.
Area: 6,300 sq. ft.

Decorations

Semi-matt paint on plaster, wood and metal.
Concrete paint on frame.
Wallpaper in common room.
Fittings and doors, synthetic lacquer.

Total of finishes: 17s 6½d

SERVICES

External plumbing

Copper flashings.

Cold water installation

Cast iron external water main. Internal piping in
copper (lagged).
Storage cistern. Hot water supply from calorifiers
only.

Sanitary fittings

Type of fitting	No. of each type
Lavatory basins	7
Sinks	3
Slop sinks	3
W.c.s	5
Glass scrub-up	5
Stainless steel sinks	3

Heating and ventilation

Domestic hot water from a pair of steam heated
copper storage calorifiers with pumped circulation.
Internal temperatures: 60 deg. F. to 80 deg. F. at
50 per cent to 70 per cent humidity.
Air change: 10 per hour for whole suite.
U of walls and roof: 0·18.

Gas installation

Special anaesthetic gases (cost not included in
contract).
3 points in plaster room, 6 points per theatre,
10 points in post-op. room, 8 points in anaesthetics
rooms.

Electrical installation

Type of point	No. of each type
13 amp.	40
Tungsten ceiling fittings	134
Viewing boxes	8
Clocks	9

Lifts

1 bed lift.
1 bin hoist.

Total of services: 55s 1½d

Drainage

Glazed fire clay and cast iron.

Other elements

Glazed observation galleries.
Electrical and manual blinds in theatre
Hospital equipment provided by Department of
Health, and cost not included.

Shillings per sq. ft. of floor area:

£80,530 (net cost excluding drains and ext. work)	
9,724 sq. ft. (measured inside external walls)	= 165 7½

analysis

COST COMMENTS

The analysis gives a cost of 165s. 7½d. per square foot, but this should be appraised in the light of the following considerations:

1. Site conditions

- (a) The site is extremely restricted.
- (b) The new theatres are built at 20 ft. above ground level over an existing operating theatre.
- (c) No interruption of existing hospital routine, with consequent noise restrictions.

These three items alone could account for a possible 10 per cent of the total cost in contractors' overheads, plant and equipment and handling charges, especially with the Scottish National Building Code of Contract with individual trade contracts.

2. Construction and finishes

The site has to a certain degree dictated the building form and probably the best answer was using concrete as the structural medium, with cantilevers.

Also woven into this already tricky problem are service and ventilation ducts. The possibility of repetition for formwork is small and the need for careful handling of the whole of the concrete work is reflected in the frame, floors and roof costs of 22s. 3½d., 7s. 6½d. and 10s. 1¼d.

External walls are of high cost without embellishment of 1-in. slate in addition.

3. Specialized client requirements

Any building type must have certain costs attributable to it which no other building will have. This particular building's special requirements account for the following items:

	Approx. cost per sq. ft.
	s. d.
(a) Heating and ventilation with 10 air changes per hour	20 0
(b) Stainless steel surfaced doors	1 0
(c) Special lighting and microphone equipment in theatre	1 0
(d) Mechanical blinds to theatre	2 6
(e) Bed lift	5 0
(f) Viewing gallery for students	4 6
(g) Specialized sanitary fittings and plumbing requirements	2 0
(h) X-ray protection	1 0
(i) High degree of dirt resistant surfaces	3 0
	<hr/> 40 0

When taking final stock of the cost pattern of this building all the above points should be considered and then a decision whether this is a truly expensive building or not can be made.

CONTRACTORS

Builder and main contractor: William Arnott McLeod & Co. Ltd. *Sub-contractors:* *Joinery:* Peter Nimmo & Son Ltd. *Plumbing:* Mackie & Simpson Ltd. *Terrazzo:* Toffolo Jackson Co. Ltd. *Plasterwork:* Peter Kelt & Sons Ltd. *Windows:* Crittall Manufacturing Co. Ltd. *Glazing:* Northern Glazing Co. Ltd. *Felt roofing:* William Briggs & Sons Ltd. *Viewing dome and ironmongery:* Bell Donaldson & Co. Ltd. *Floor coverings:* Rowan & Boden Ltd. *Electrical contractors:* William Allan Smith & Co. Ltd. *Lifts:* Shorts Lifts Ltd. *Heating contractor:* Steels Engineering Installations (Scotland) Ltd. *Radiators and panels:* Ideal Boilers & Radiators Ltd. *Cabinet heaters and convectors:* Copperad Ltd. *Calorifiers:* Hartley & Sugden Ltd. *Pumps:* Pulsometer Engineering Co. Ltd. *Air conditioning contractor:* R. B. Stirling & Co. Ltd. *Air conditioning units:* Scientaire Ltd. *Centrifugal fans:* Matthews & Yates Ltd. *Axial flow fan:* Woods of Colchester Ltd. *Air conditioning automatic controls:* Teddington Industrial Equipment Ltd. *Air filters:* Vokes Ltd. *Medical equipment:* Pressurised sterilizing system: Manlove Alliott & Co. *Rothwell sterile water system:* Charles F. Thackray & Co. *X-ray equipment and inter-com. system:* Watson & Son. *Shadowless operating theatre lamps:* Technical Lights and Equipment Ltd. *Piped anaesthetics:* British Oxygen Co. Ltd.

BOILER HOUSE

for WESTERN GENERAL HOSPITAL
EDINBURGH

designed by BASIL SPENCE and PARTNERS
in association with JOHN HOLT,
Regional Architect, South-Eastern
Regional Hospital Board of Scotland

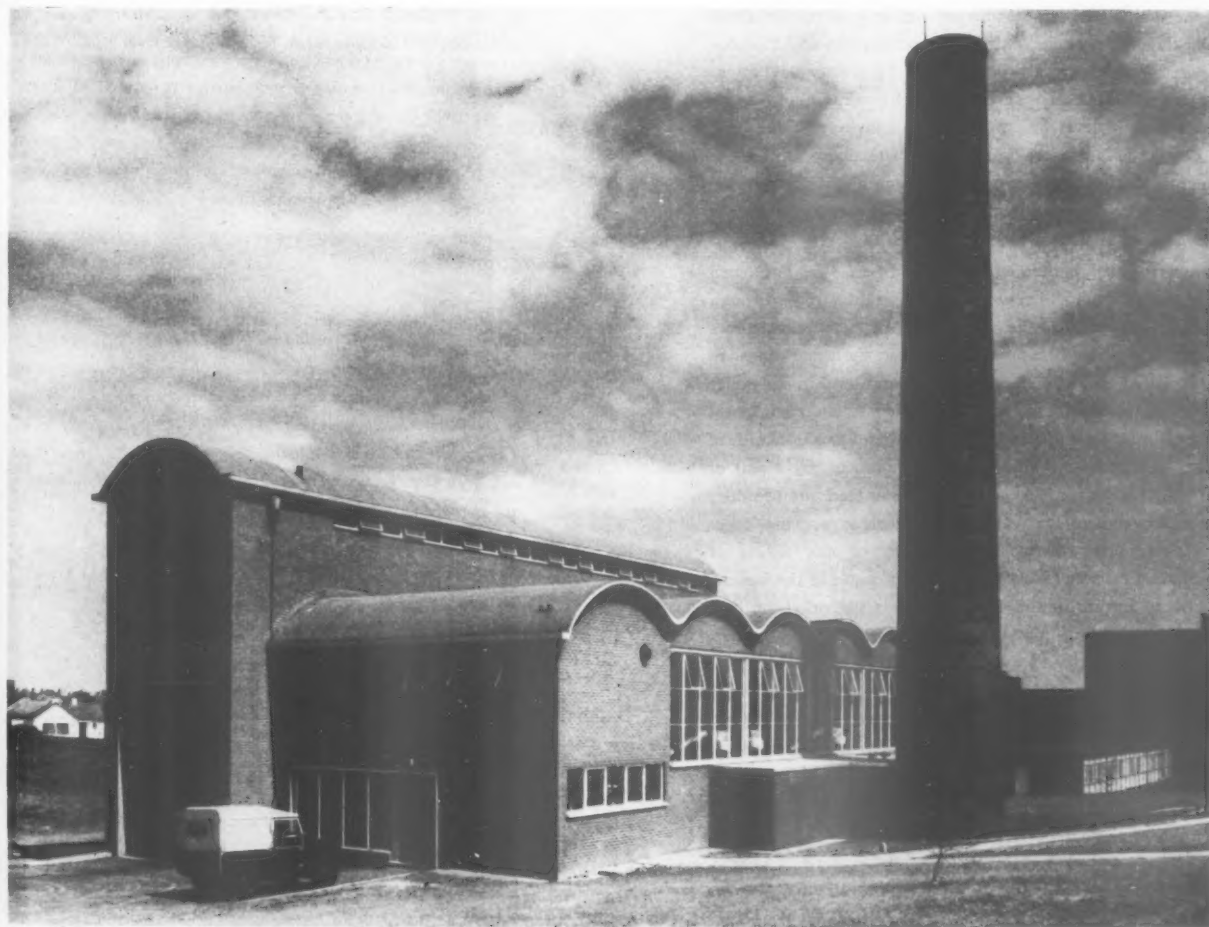
quantity surveyors JAMES GENTLES and SON
consultants (structural) BLYTH and BLYTH
(heating and ventilating) DONALD SMITH, SEYMOUR and ROOLEY
in association with The Regional Engineer

BIB File No. (93)

UDC No. 725.4

This boiler house, of comparatively large capacity, is one of a series of extensions to the Western General Hospital, Edinburgh, and will serve the entire hospital, including extensions yet to come. The only previous boiler house cost analysed in the AJ was published on March 14, 1957.

View from the south-west.



building illustrated

This boiler house is built of similar materials to those used for the other new hospital buildings on the site, although it is of course quite different in form. Because further considerable extensions of the hospital are planned in the future, this boiler house had to be capable of expansion, and the major part of one external wall is demountable, to allow access for additional large plant. There is room in the existing building for the addition of one boiler. The coal storage hoppers are an integral part of the supporting structure.

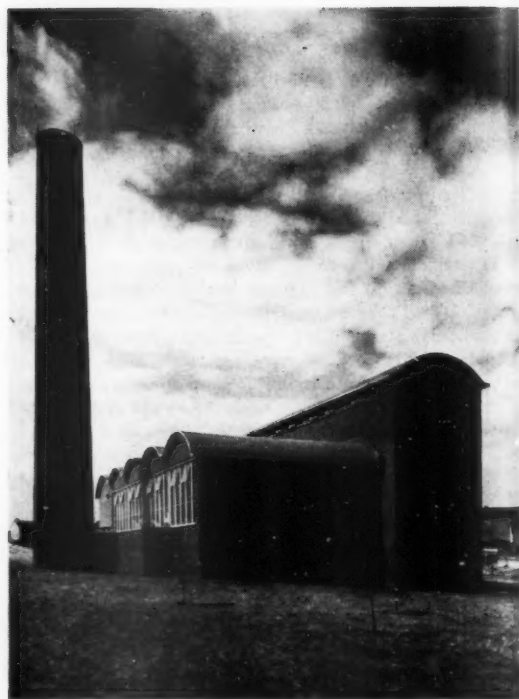
The main boiler house is in brown Dun brick, the chimney and flue connections in blue engineering brick, and small window surrounds are in slate while others are in concrete. The higher vault roof (at rear in the photograph on the previous page) encloses the conveyors and hoppers, while the boilers themselves are placed below the three centre vaults of the lower portion. The induced draught fans and grit arresters are near the glazed part of the south wall, adjacent to the flue.

The mechanical plant: The boilers are of the treble-pass shell-and-tube pattern, each capable of evaporating 10,000 lb. of steam per hour at a maximum working pressure of 120 lb. per sq. in. Each is coal-fired by means of travelling chain-grate type mechanical stokers, incorporating a special dual zone forced draught system, and fitted with induced draught fans and grit arresters.

Coal is supplied to the boiler house at a single delivery point at the west end of the building, where it is tipped direct from the delivery vehicle through a screen into a reinforced-concrete hopper, from which it feeds by gravity flow on to a mechanical bucket-type elevator discharging about 35 ft. above ground level into a horizontal conveyor of the drag link type. This delivers the coal automatically to reinforced-concrete storage bunkers, one above each boiler, from which the coal is delivered through mild-steel chutes directly on to the mechanical stokers.

Steam from the boilers is collected into an 8-in. bore steel pipe header, from which two outgoing services travel through underground ducts to the hospital buildings, and condensate is returned through copper pipework in the same ducts, to an insulated cast-iron storage tank at high level in the boiler house. A second storage tank at a higher level contains cold water for make-up purposes, and these two tanks feed water to the boilers, after chemical treatment, by a pair of vertical, direct-acting, steam-driven boiler feed pumps under automatic control, to maintain the correct working water level. Automatic alarms give warning of any failure of equipment causing excess or shortage of water in the boilers. A special feature of this boiler house is the provision of a raised, steel, firing platform at the front of the boilers, allowing easy access to the furnaces and incorporating space below for the removal of ashes by barrow, and for access to the blow-down valves. Access to grit arresters from the ash removal space is provided by ramps, wide enough to take a wheelbarrow, between each pair of boilers.

All steam and hot water heated surfaces, combustion chambers and flues are insulated with magnesia-type materials, with a smooth trowelled surface finished in high gloss paint, to the scheme of identifying colours used throughout this Hospital Region.



View of the boiler house from the east, with some of the planting which is being carried out, in the foreground. This is being done by the Regional Board's Forester in collaboration with the architects, and includes beech, birch and oak trees.

The north elevation, with intake hopper bay on right-hand gable. The curtain wall area on this elevation is of white-painted galvanized steel, and is arranged so as to be removable in part or completely for the installation or maintenance of boiler plant. The spandril panes to the firing floor are alternately white and pale grey and the top hung opening lights to the ash floor below are of roughcast obscured glass.



Cross section



Ground plan

General
Each boiler
stokers,
elsewhere
left, at the
the mechanical
the intake
conveyor
mechanical

analysis

CLIENT'S REQUIREMENTS

A new and enlarged boiler house to take three boilers now and a fourth later, with sufficient adaptability to allow for subsequent extension if necessary as the hospital is enlarged. Mechanical handling of solid fuel was essential.

PLANNING AIMS

To link this extension with other hospital developments taking place without being unduly obtrusive in the fully developed scheme.

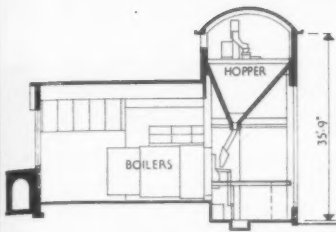
SUMMARY

Ground floor area: 4,015 sq. ft.
 Total floor area: 4,286 sq. ft.
 Type of contract: Scottish National Building Code.
 Work began: January, 1956.
 Work finished: April, 1958.
 Final contract price of foundations, superstructure, installations and finishes: £28,301.
 Final contract price of external works including drainage and ancillary buildings: £5,635.
 Total: £33,936.

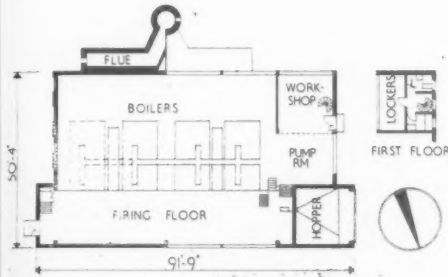
Preliminaries and insurances	s	d
	5	0
Work below ground floor level	24	6½
Excavations, up-filling, bottoming, damp-proof courses, tanking walls and ducts. R.c. concrete in strip foundations, column bases, floors and walls of hopper elevator pit and hot well; mass concrete bases for boilers.		

STRUCTURAL ELEMENTS

Frame or load-bearing element	17	6
Reinforced concrete columns and beams and overhead coal hoppers.		
External walls	14	8½
11-in. cavity brickwork, 4½-in. brick skin facing. Concrete beams, etc., and all external walls face brick.		
Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{1.453}{1}$		
Windows	8	5½
Galvanized steel windows with remote control gear. North wall steel curtain wall 63 ft. long and 23 ft. 3 in. high with metal infill at lower panes.		
Ratio: $\frac{\text{windows}}{\text{floor area}} = \frac{0.557}{1}$		
External doors	2	
Framed and lined softwood.		
Ratio: $\frac{\text{doors}}{\text{floor area}} = \frac{0.019}{1}$		
Upper floors	10	
There is a small office area above the boiler room with cast <i>in-situ</i> concrete floor, 6½-in. thick. Span: 16 ft. Area: 270 sq. ft. Superload: 50 lb./sq. ft.		
Staircases	4½	
One mild steel spiral staircase, 4 ft. 6 in. in diameter. Total rise: 10 ft. 6 in.		



Cross section [Scale: ¼" = 1' 0"]



Ground floor plan [Scale: ¼" = 1' 0"]

General view of the firing floor, with *in-situ* r.c. hoppers above. Each boiler is coal fired by travel chain grate type mechanical stokers, with forced draught system. The floor is steel plate; elsewhere the colours used here are blue, black or grey. On the left, at the far end of this firing floor can be seen the shaft for the mechanical bucket type elevator, which is gravity fed from the intake hopper and lifts the coal to a draglink horizontal conveyor, discharging into the storage bunkers which feed the mechanical stokers, also seen in this photograph.



analysis

Roof construction

Cast *in-situ* concrete shell roof with $\frac{3}{4}$ -in. cement/sand screed.

Area: 3-in. roof, 329 sq. yds.; $2\frac{1}{2}$ -in. roof, 180 sq. yds.

Glazing

32-oz. clear sheet generally.

$\frac{1}{4}$ -in. polished plate in office screen.

$\frac{1}{4}$ -in. roughcast in bottom pane in curtain wall.

Total of structural elements: 55s 10 $\frac{1}{2}$ d

PARTITIONS

Internal partitions

Type of partition

Area of each type

4 $\frac{1}{2}$ -in. brick

54 sq. yds.

9-in. brick

37 sq. yds.

Screens

Steel window in office.

Internal doors

3 single doors, flush plywood finish.

Ironmongery

Mortice and cylinder latch to external doors and mortice locks to pass doors with n.c. lever handle furniture.

Total of partitions: 9 $\frac{1}{2}$ d

FINISHES

Floor finishes

Type of finish

Area in sq. ft.

Price per sq. yd.

$\frac{3}{8}$ -in. quarry tile

36

71s.

4 \times 5-mm. lino in

office

180

42s.

2-in. granolithic

3,204

12s. 6d.

Wall finishes

Office and w.c., plastered

Elsewhere flush-pointed facing brick.

(Cost includes the extra cost of facing brick over common brick.)

Ceiling finishes

Asbestos sprayed on underside of concrete roofs over boilers and office.

Roof finishes

3 layers of bituminous felt with mineral surface to top layer.

Area: 5,265 sq. ft.

Decorations

Gloss and flat paint on metal and wood. Flat paint and cement paint on concrete.

Total of finishes: 8s 5d

SERVICES

External plumbing

C.i. rainwater, lead roof flashings, aluminium drip flashing round perimeter of roofs.

Cold water installation

C.i. underground water main. Internal lagged copper pipe. Cold storage cistern and hose taps.

s d

12 4 $\frac{1}{2}$

Sanitary fittings

1 w.c. and 1 basin.

Heating and ventilation

None. Boiler house plant and equipment costing £40,237 is not included in cost, since it serves the entire hospital and was provided for under a separate contract.

Electrical installation

Mineral-insulated copper sheathed cables, surface run, except for those in 6-in. \times 3-in. floor ducts which are covered with sand and flush metal plates.

Lighting points 46

5-amp. switches 28

13-amp. socket outlets 6

50-v. socket outlets 11

Total of services: 14s 5 $\frac{1}{2}$ d

2 Drainage

Glazed fireclay and c.i. drains, brick manholes and blow down pit, heavy c.i. covers.

1 $\frac{1}{2}$

Other elements

80 ft. high brick chimney, 9 ft. 6 in. external diameter at midheight with blue engineering brick to outer face. R.c. foundation and firebrick lining. Horizontal flue built for 4 boilers in composite walling with facing brick and insulating brick lining.

1 $\frac{1}{2}$

Shillings per sq. ft. of floor area:

£28,301 (net cost excluding external works)

4,286 sq. ft. (measured inside external walls)

= 132 1

COST COMMENTS

Boiler house £28,301. Boiler equipment £40,237.

The building is simple, virtually four walls and a roof and the shape is to a certain extent dictated by the equipment housed and other costs are also connected with the primary concern of providing heat. These include: (a) chimney; (b) fuel hoppers with feed conveyors; (c) high floor to ceiling height (floor to wall ratio 1:453). The foundations are dominant at 24s. 6 $\frac{1}{2}$ d. with structural concrete components of frame and roof totalling 29s. 10 $\frac{1}{2}$ d. per sq. ft. floor area.

The remainder of the items are not unduly high in costing, except possibly electrics making a highlight. External walls with a ratio of 1:453 at 14s. 8 $\frac{1}{2}$ d. produces 10s. 2d. per square foot of wall surface and appears out of line with the simple specification stated.

CONTRACTORS

General contractors: Wm. Arnott McLeod & Co. Ltd. Sub-contractors: Carpentry and joinery: Peter Nimmo & Son Ltd. Plumbing: Mackie & Simpson Ltd. Plastering: Peter Kelly & Sons Ltd. Bituminous felt roofing: William Briggs & Son. Windows: John Thomson (Beacon Windows) Ltd. Boilers: John Thomson (Wilson Boilers) Ltd. Mechanical stokers: James Hodgkinson (Salford) Ltd. Coal handling plant: Bennis Combustion Ltd. Pipework: Hugh C. Gibson's Heirs. Insulation: McAndrew Wormald & Co. Ltd. Boilerhouse instrumentation: Kelvin Hughes Ltd. Electrical work: William Allan Smith & Co. Ltd.

4 9 $\frac{1}{2}$

s d
13

7 6

7 11

13 10

132 1

roof and
equipment
with the
lude: (a)
(c) high

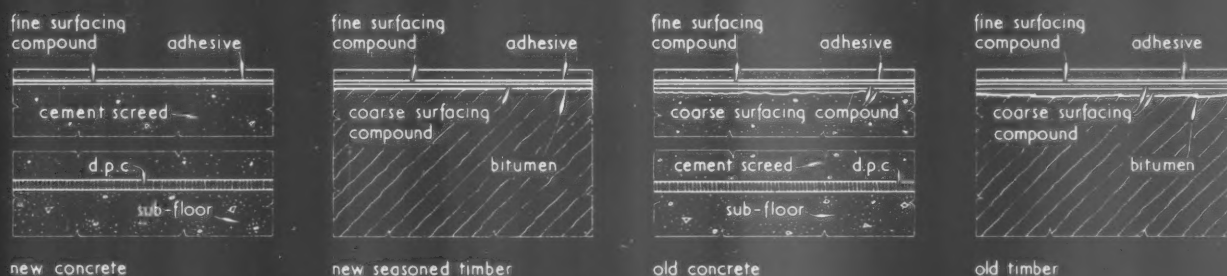
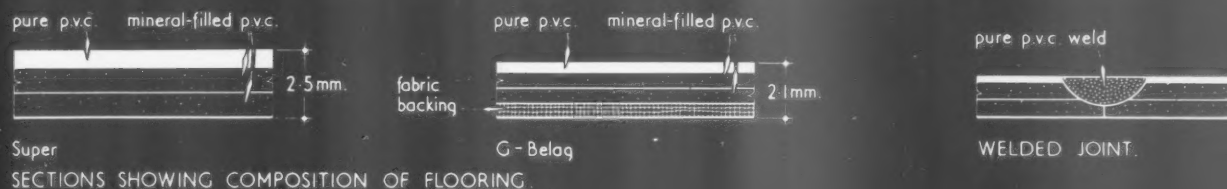
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FLOOR FINISHES | POLYVINYL CHLORIDE

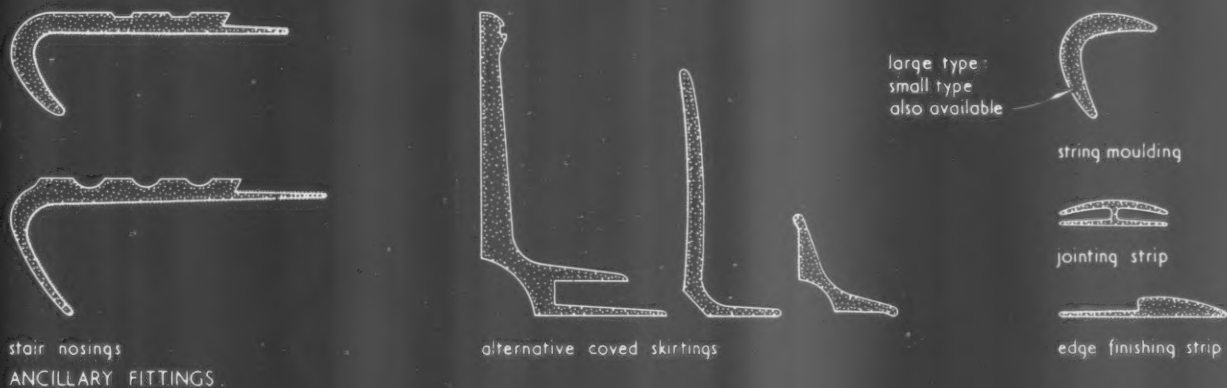
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type	thickness	size		applications
		sheet	tile	
Union	1.1 mm.	4'-11" x 27 1/2 yd.	—	for domestic use
	1.5 mm.	—	11 1/2" x 11 1/2"	suitable for light traffic
Special	2 mm.	4'-11" x 22 yd.	14 1/2" x 14 1/2"	for use in shops, offices and other public buildings
G-Belag (fabric-backed)	2.1 mm.	—		for use where quietness is essential, e.g. hospitals, corridors, theatres, etc.
Super	2.5 mm.	4'-11" x 16 1/2 yd.		a heavy-duty covering for use in areas where exceptionally hard wearing qualities are required
Castellated (fabric-backed)	2.1 mm.	4'-11" x 22 yd.	—	public transport, entrances, etc.

* also available in F.U. quality for use on sub-floors containing excess moisture

FLOORING TYPES, SIZES AND APPLICATIONS.



19.K1 · PEGULAN · P.V.C. FLOORING

This Sheet describes Pegulan flooring, which is available in sheet or tile form. The types of flooring, their applications, typical fixing details, and ancillary fittings are shown on the face of the Sheet.

Material

The flooring is flexible, dimensionally stable, multi-layered polyvinyl chloride. The two bottom layers are mineral-filled and the top surface pure polyvinyl chloride, the laminations being fused together by heat and pressure. It is non-slip owing to the box-grain finish; where special hazards are anticipated, "castellated" flooring is available with a reeded surface. It is resistant to wear and to indentation, recovering from prolonged pressure from point loads provided the sub-floor is hard and sound. It is unaffected by acids and alkalis (in normal concentrations), oils, grease and fats, and it is resistant to staining. A fabric-backed type (G-Belag) is available for use where quietness is essential, in hospitals, corridors, etc. Stair nosings, coves, closure strips, etc., are of homogeneous polyvinyl chloride.

Preparation of Surface

With a site concrete sub-floor, an adequate damp-proof course must be provided, as a surface or sandwich membrane. All concrete sub-floors direct to ground or suspended must be tested with a hygrometer to ensure that the moisture content is within the specified limit: the manufacturer will supply the necessary data. The F.U. quality, although intended for sub-floors containing excess latent moisture, must not be laid on floors lacking an adequate damp-proof course, as it is not proof against rising damp or hydrostatic pressure.

Sub-floors must be clean and free from oils, grease and fats, paint, varnish or wax treatment. All traces of these must be removed by machine sanding, washing with detergent or Pegulan cleaner; the latter is recommended as the use of water extends the drying time. Paint, etc., can be removed from concrete with caustic soda or paint remover, but the surface must subsequently be completely neutralised. The manufacturer supplies a levelling compound, for all types of sub-floor, which ensures a smooth, hard surface: it is available in coarse or fine quality. A special quality with a Neoprene content is available for use on damp sub-floors. Other materials are not recommended unless approved by the manufacturer.

Concrete sub-floors: Uneven screeds on site concrete or suspended floors should be levelled with one or more coats of coarse compound and finished with one coat of fine. Each coat must be dry before the next is applied. New concrete floors should be given a screed of 3 : 1 sand and cement to a thickness of 1 in. min., floated smooth and level with a steel trowel. When dry, the screed should be scraped, swept clean and at least one coat of fine compound applied. With rapid-hardening cement the moisture content should be specially checked after setting.

Timber sub-floors: All timber sub-floors should be adequately ventilated. For best results a boarded floor should be screeded with Pegulan compound, or levelled with plywood (not hardboard), taking care that joints do not show. Before screeding or levelling existing boarded floors, loose boards should be re-nailed and worn ones replaced. The boards should be painted with a bituminous seal to prevent

absorption of moisture from the surfacing compound. Pegulan is laid on wood block floors as on boarded floors. All new timber floors must be well seasoned before the flooring is laid.

Ceramic tile, terrazzo, metal sub-floors: These should be cleaned with a scrubbing machine using soapy water and clean sharp sand, joints or cracks filled and a coat of fine surfacing compound applied. Metal floors should be cleaned of all rust, scale and grease.

Magnesite sub-floors: Provided the sub-floor is thoroughly dried out and structurally sound, the flooring may be laid after suitable preparation.

Mastic asphalt: A coat of fine surfacing compound will prevent any reaction from the adhesive.

Laying

Adhesive: Pegulan adhesive has a Neoprene base and is highly inflammable. It is an impact adhesive and is used sparingly (8 oz. approx. per sq. yd. maximum). Drying time varies with temperature and humidity (10 to 30 min.). The adhesive should not be diluted, but should be stirred thoroughly at each using and the container closed tightly after use.

Sheet flooring: This should be laid with the minimum number of joints. It should first be laid out with overlapping joints of $\frac{1}{2}$ in. minimum. The heavier qualities should be cut and allowed to lie 24 hours before fixing. Close-butted joints are sufficient for most applications, but they can be welded where a hygienic floor is required. This is effected by cutting a groove along the joint and filling it, by means of a welding machine, with soft p.v.c. in rod form. When cool, the surplus is cut off; the finished joint is shown on the face of the Sheet.

Tiles: The tiles should be laid from a predetermined point, each tile being placed corner first, accurately positioned and pressed down by hand.

Staircases: Sheet flooring can be cut to fit treads and risers separately or laid in one piece, a neat fit being obtained by cutting halfway through from the back of the sheeting at the junction of tread and riser.

Colours

The sheet flooring and tiles are available in a wide range of plain and marbled colours. Plain colours are available in 1.5 and 1.1 mm. thicknesses only.

Maintenance

The flooring should be washed daily with a soft-soap solution and dried with a mop wrung out but not rinsed, so that a thin protective film of solution remains. For a high polish, Pegulan polish or any other wax emulsion polish should be used; polishes containing spirit solvents should not be used as they may cause softening or discoloration.

Further Information

The manufacturer maintains a technical advisory service to answer questions on installation generally, laying techniques, common laying faults, etc.

Compiled from information supplied by:

Pegulan Sales Limited

Address: 48, Heaton Road, Newcastle-upon-Tyne, 6.
Telephone: Newcastle 65-0375.

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[illegible]

A2
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.B.A.

working detail

(27)

ROOFS AND CEILINGS: 61

MONITOR ROOF: FACTORY IN GOTHAM, NOTTS.

Bartlett and Gray, architects

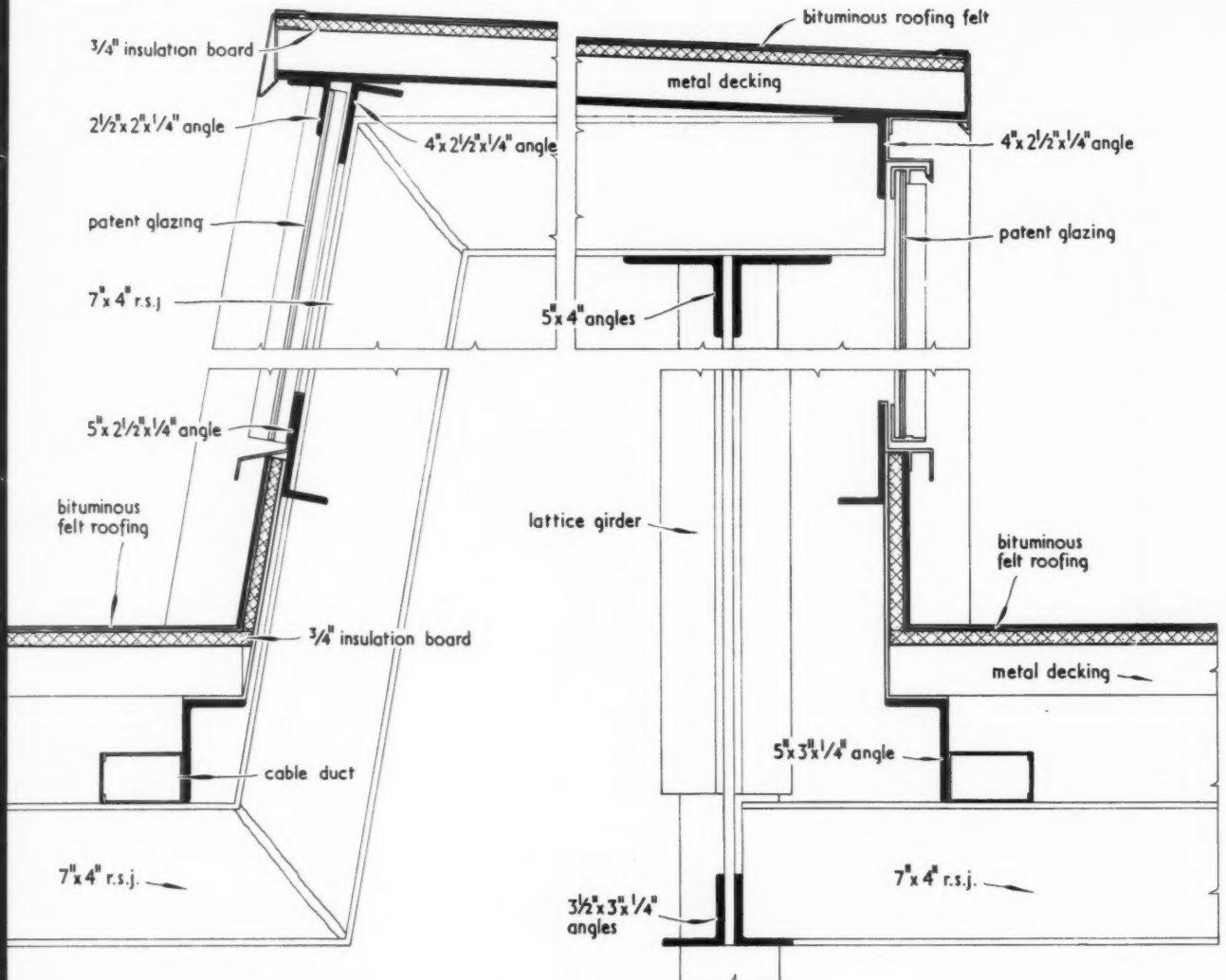


The basis of the construction in this detail is a lattice girder spanning the width of the building and supporting the cranked r.s.j. framing to the monitor roofs. One end of the r.s.j. bears on the top flange of the lattice girder and the opposite end, for the next bay, bears on the bottom flange.

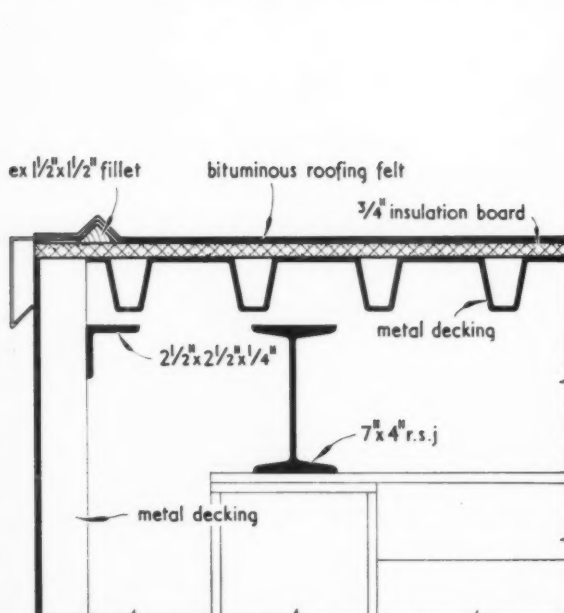
working detail

MONITOR ROOF: FACTORY IN GOTHAM, NOTTS.

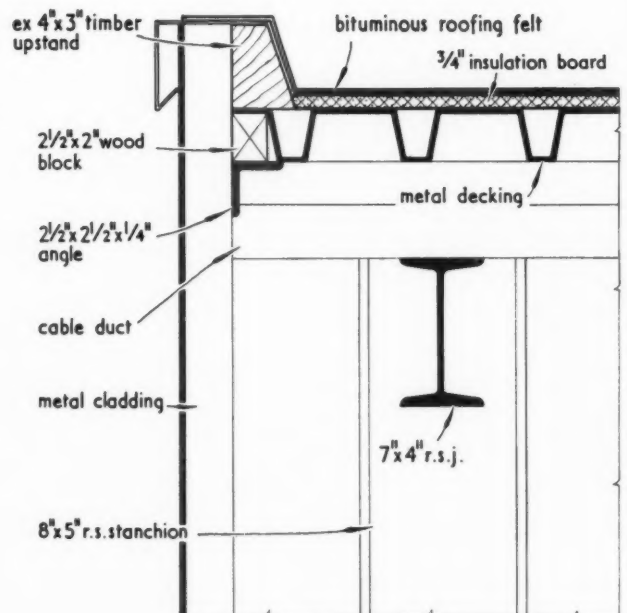
Bartlett and Gray, architects



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SECTION THRO' VERGE OF FLAT ROOF. scale: 1 1/2" = 1'-0"



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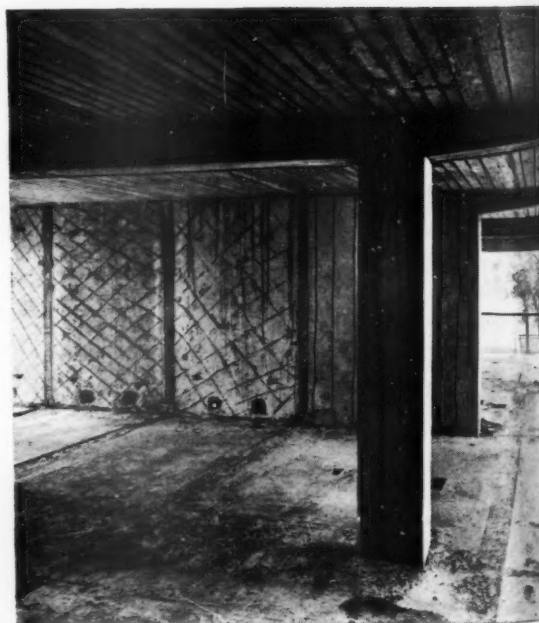
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Where heavy point loads occur, such as beam ends seating on the cross walls, the cavities are filled solid.

Architect: R. A. H. Livett, O.B.E., A.R.I.B.A., Leeds City Architect's Dept.
Main Contractors: Myton Ltd.



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SHOPS, OFFICES AND FLATS IN QUEENS ROAD, BRISTOL



"Clifton Heights" is a new building now being put up in Bristol. It occupies a key position, immediately adjacent to Queens Road, the high-class shopping area of Bristol, and is on the route of a future main artery of the city. The scheme is intended to be the focal point among surrounding low buildings. The building provides for shops and showrooms on the ground and first floors and offices and flats above. The flats start at three and a half storeys above ground level and therefore rise clear of the buildings in the immediate vicinity. The top floor has been given over to a restaurant as it was thought worthwhile to provide this amenity with the best views of the city. This restaurant and bar are served by a non-stop high-speed lift from the ground floor foyer. Three other lifts give access to the other floors. Car parking is taken care of by 8,325 sq. ft. of space in the basement. The 156-ft. high tower block, containing the restaurant and 48 flats, is constructed of reinforced concrete. Maximum use is to be made of prefabricated units in frames, beams and staircases to be lifted into position by a tower crane. Land and General Developments Ltd. are responsible for the scheme which has been designed by a local architect, Raymond Moxley. The consulting engineers are Clarke, Nicholls & Marcel. Messrs. Gleeds are the quantity surveyors and the contractors are Griggs & Son Ltd.

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Announcements

PROFESSIONAL

Moir & Bateman, F/ R.I.B.A., A.M.T.P.I., of Rochdale have now opened a branch office at 180, Oxford Road, Manchester, where they will be pleased to receive trade catalogues.

The firm of Easton & Robertson have now changed their name to Easton & Robertson, Cusdin, Preston and Smith.

H. A. Metcalfe, Dipl. Arch., A.R.I.B.A., has been appointed architect to Davies Agricultural Services Ltd., and has opened an office at Burton Chambers, King Street, Carmarthen, Wales (telephone 6671/2) where he will be pleased to receive trade catalogues.

TRADE ANNOUNCEMENTS

D. G. Hill is now Manager of the Air Filter Department of Air Control Installations Ltd.

J. C. Blackmore, a Director of The Unit Construction Co. Ltd., has been appointed General Manager of the Company.

The Villiers Engineering Co. Ltd., of Wolverhampton, have appointed R. J. Knight as North of England area manager and A. E. Akerman as Midlands area manager.

Boulton Tubular Structures has now changed its name to Boulton Scaffolding Ltd.

John D. Bolckow is now a Director of Redpath Brown & Co. Ltd.

Nettle Accessories Ltd., have moved their London office and depot to 11/12, Paddington Green, London, W.2 (telephone Ambassador 3231/2).

On 1st January, 1960, the British Thomson-Houston Co., Metropolitan-Vickers Electrical Co., and Siemens Edison Swan Ltd., change their names to Associated Electrical Industries (Rugby) Ltd., Associated Electrical Industries (Manchester) Ltd., and Associated Electrical Industries (Woolwich) Ltd., respectively.

The Nuralite Co. Ltd. have made the following appointments: S. N. Brandon—Eastern Region Manager; K. R. Warner—Eastern Region Technical Representative; and S. W. Titheridge—Southern Region Technical Representative.

Expandite Ltd. have opened a Northern Factory and Depot at Trafford Park Road, Trafford Park, Manchester, 17 (telephone Trafford Park 1285/6).

Ramsay & Sons (Forfar) Ltd. have opened a new supply depot within the British Railways Mineral Yard, Haymarket, Edinburgh, 12.

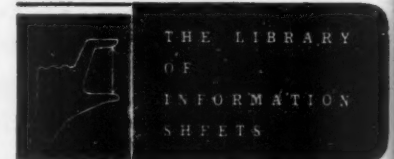
George Ellison Ltd. have appointed D. L. Stokes as Technical Sales Engineer for Ellison products in the counties of Essex, Norfolk, Suffolk, Huntingdon, Cambridge and the Isle of Ely.

Kenneth Druce, D.F.H., A.M.I.E.E., is now Sales Manager to the English Electric Company of South Africa (Pty) Ltd.

Corrections

The advertisement for Ideal Standard was incorrectly printed in the JOURNAL for November 19, but the advertisement in this issue is correct.

The ZDA stand at the Building Exhibition, illustrated on page 543 of the JOURNAL for November 19, was designed by Dewar-Mills Associates.



10.J1, 10.J3 REFERENCE BACK

10.J1. Reverse of Sheet, heading "Pitched Roofs," second sentence to read "with a pitch of more than 1 in 6, . . ." Heading "Finish," delete from "treated with a solution of copper sulphate . . ." to end of paragraph and substitute "given a priming coat of calcium plumbate paint, or, alternatively, treated with a proprietary mordant solution before applying the finishing coats of paint."
10.J3. Face, upper drawing, amend note to "minimum fall 20°." Reverse, heading "Construction," fourth line, amend to "The minimum fall should be 20° (1 in 3)" and end of paragraph to " . . . falls below 30°."

CHURCH COWLEY PRIMARY SCHOOL

—recently completed
for
Oxford City Council

Architect : E. G. Chandler, F.R.I.B.A., M.T.P.I., Oxford City Architect.

Bricks : 2½" Red Multi Rustics supplied through Pratt (Watford) Ltd.

Builders : A. C. Carter (Oxford) Ltd.

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hot water —
can you
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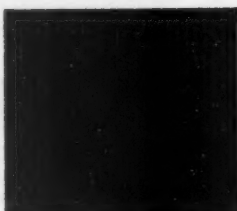
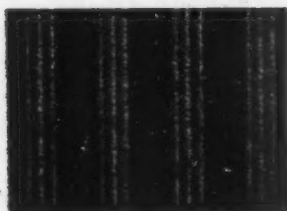


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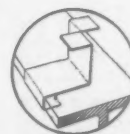
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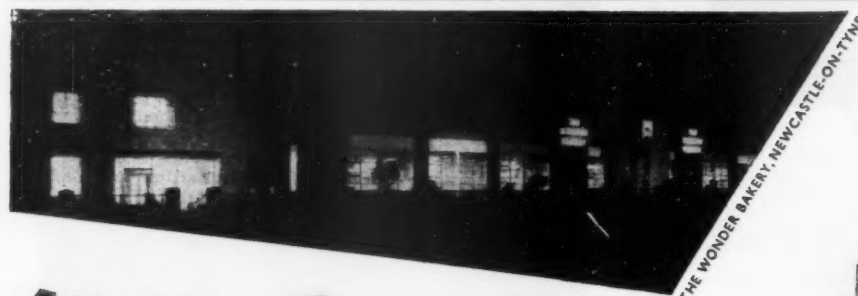
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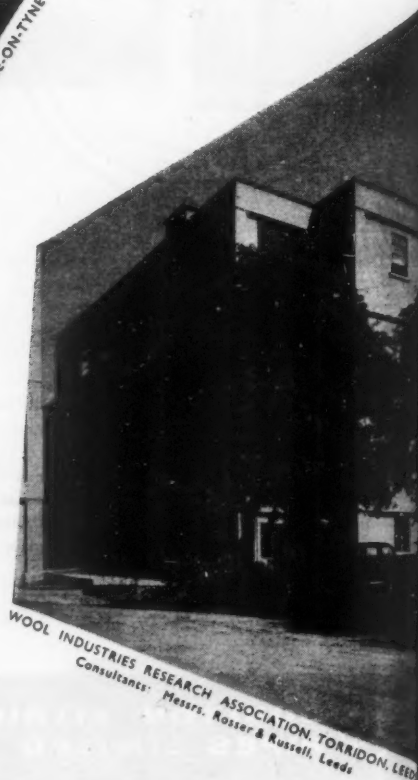


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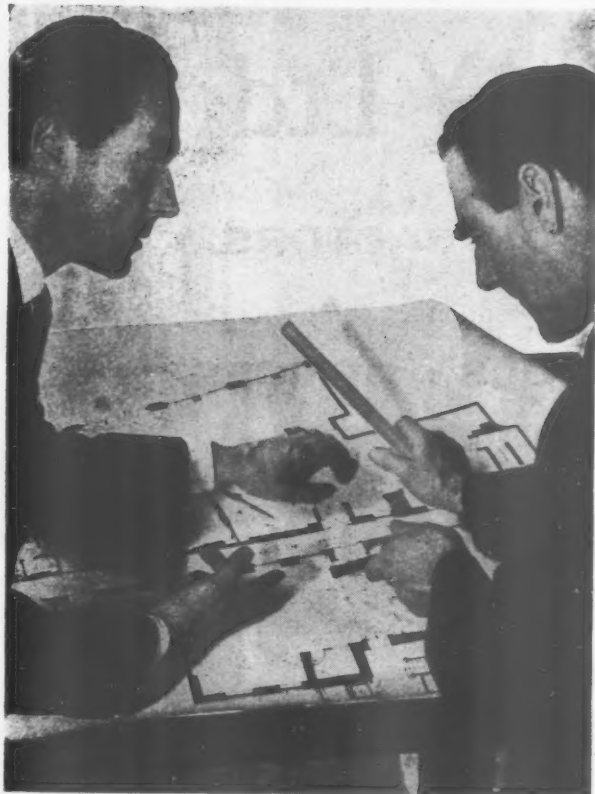
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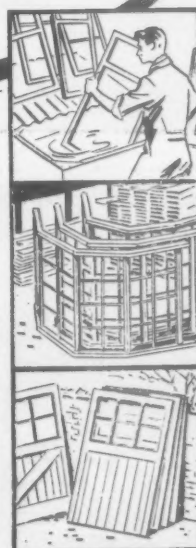
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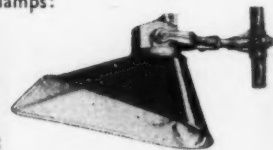
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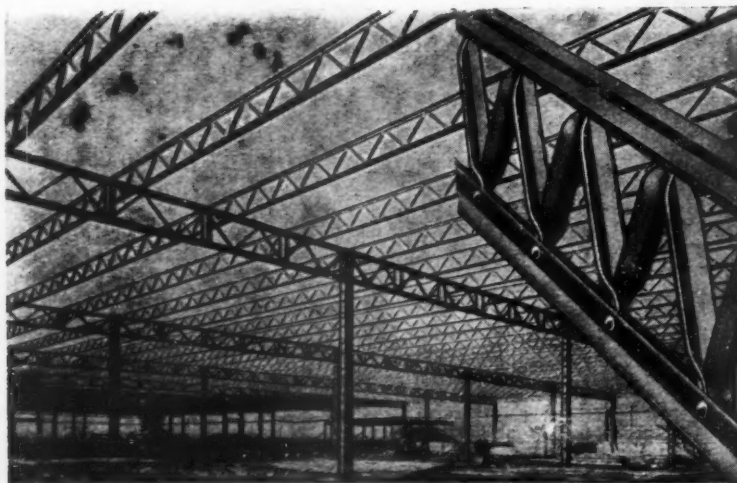
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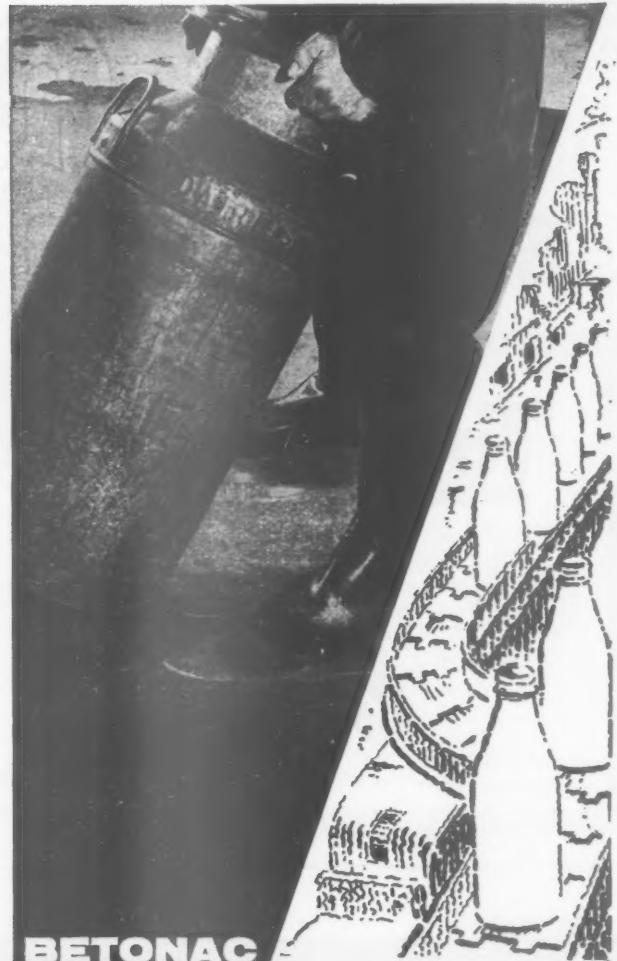
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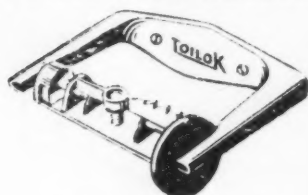
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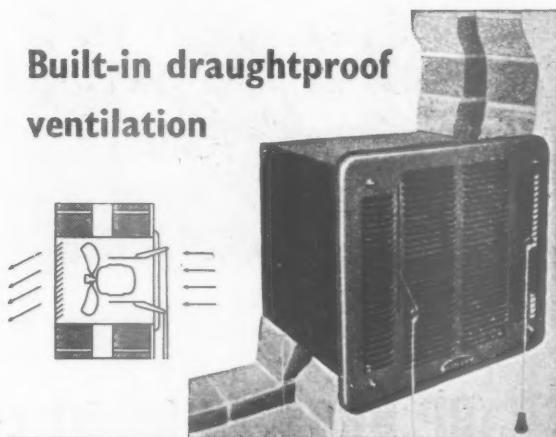
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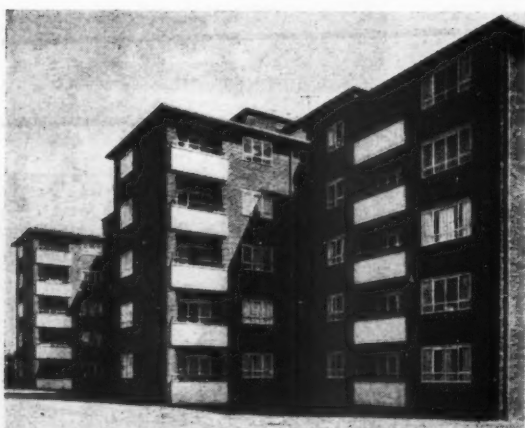
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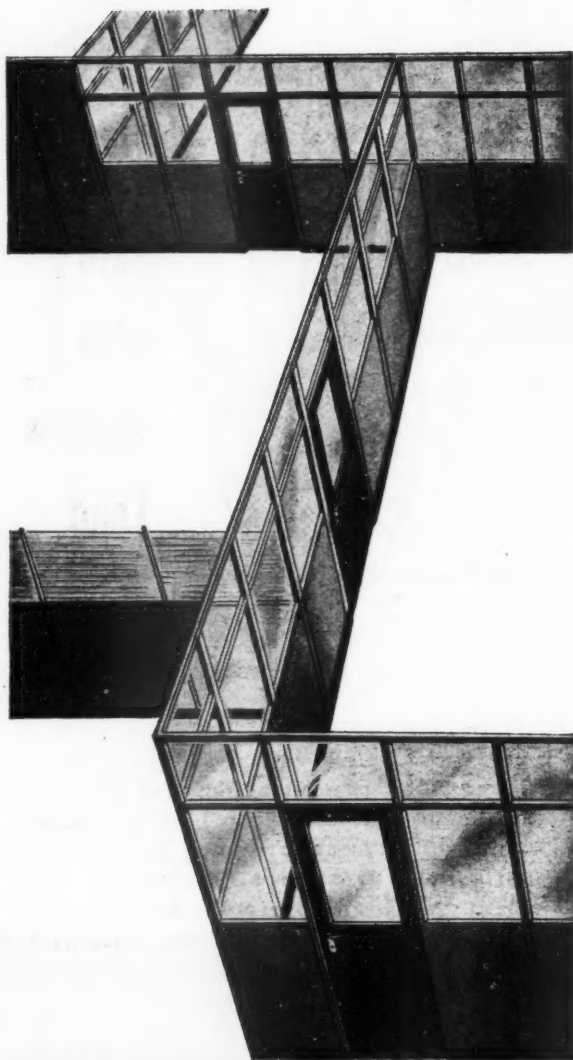
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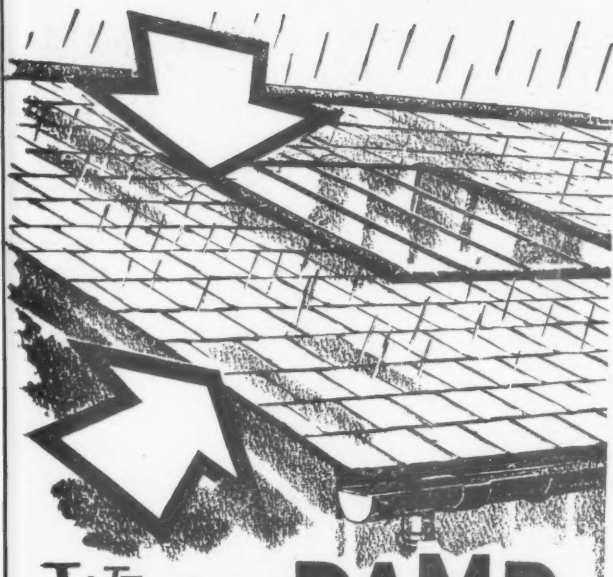
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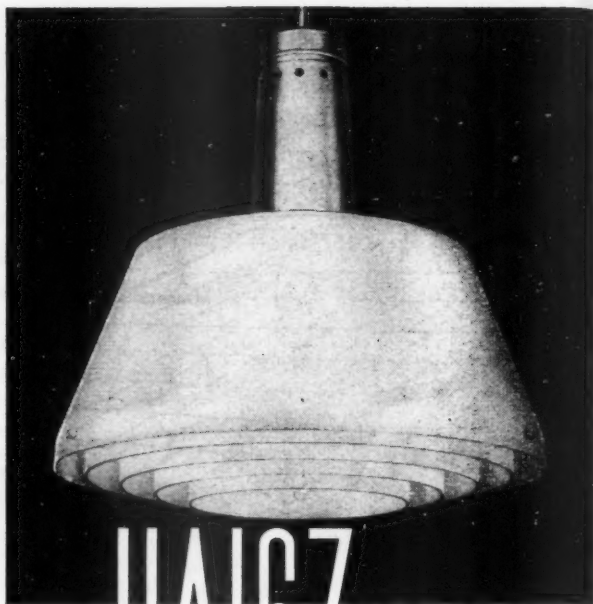
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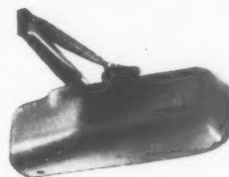


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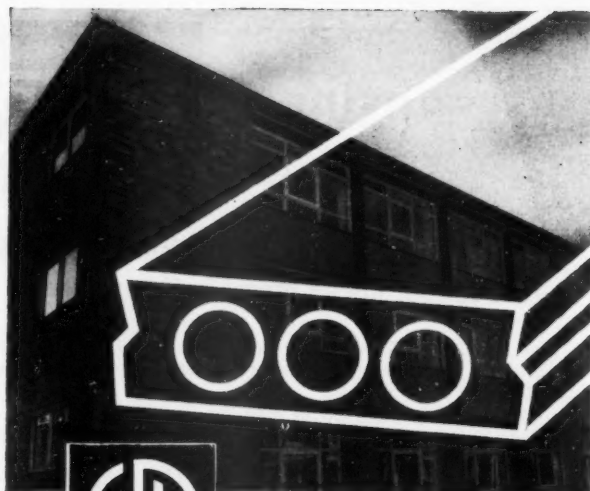
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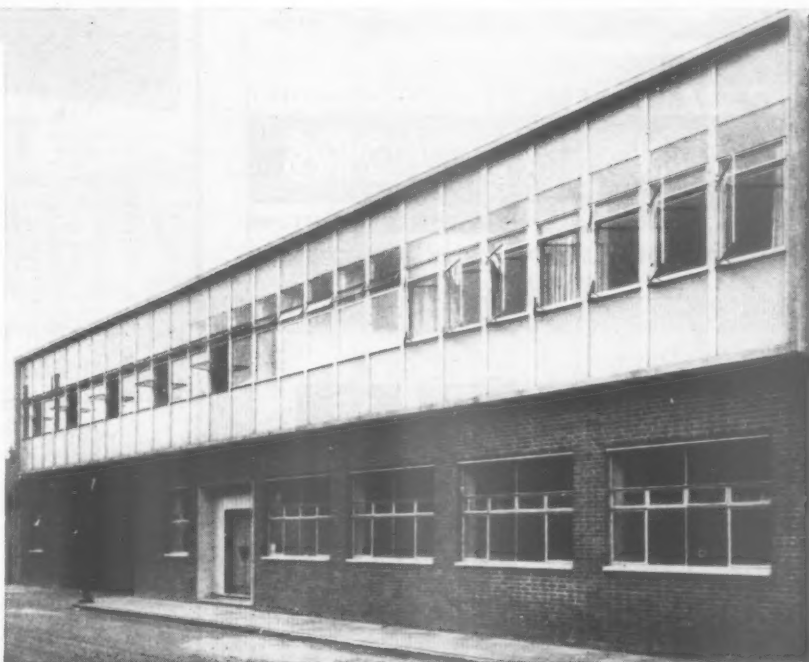
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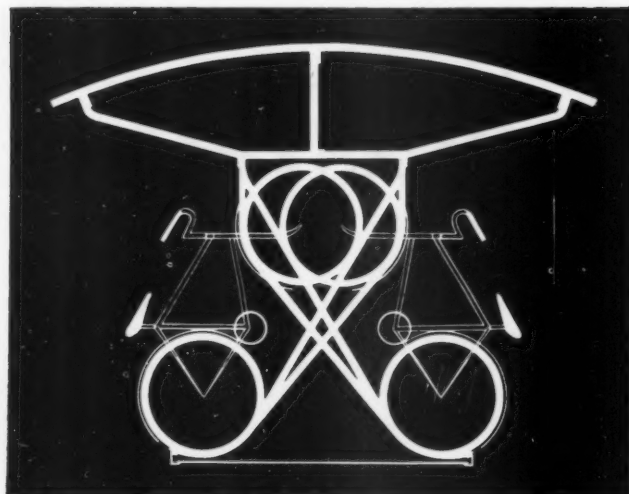
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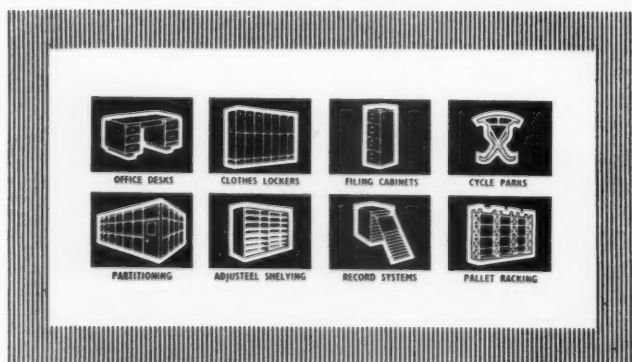
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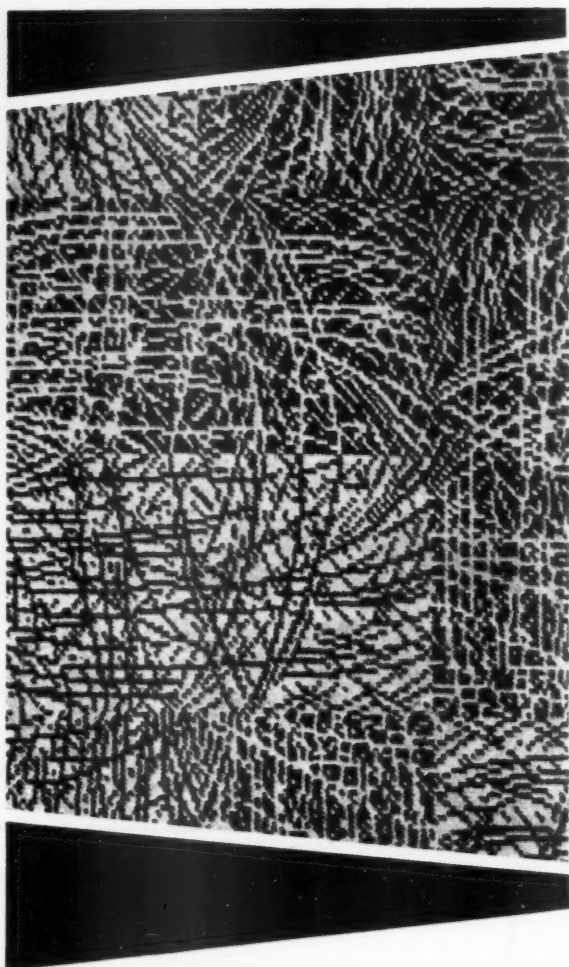


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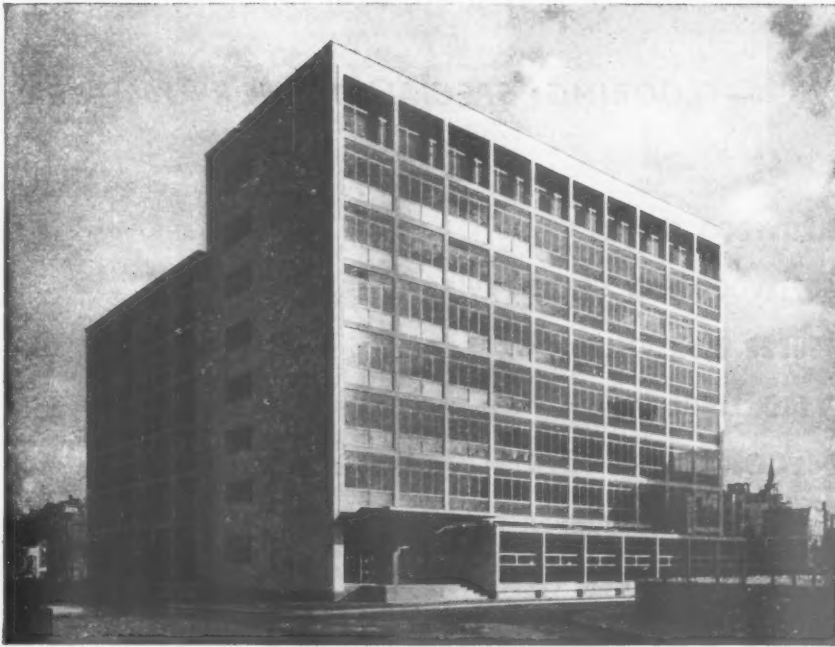
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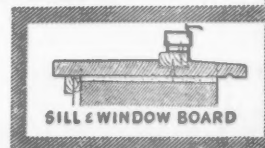
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to form special group

NEW COUNTY OFFICES are to be built approximately 3 miles from the City of Leicester. Responsibility for design and execution has been entrusted to the County Architect, T. A. Collins, F.R.I.B.A., and a special group within his department will be formed for the purpose. The project affords exciting possibilities to architects of more than average ability and applications are invited for the following posts:—

- (a) Principal Assistant Architect £1,385—£1,620
- (b) Senior Assistant Architect £1,220—£1,375
- (c) Assistant Architect £785—£1,070

Candidates for (a) must be Chartered Members of the Royal Institute of British Architects, have a flair for design, be capable of undertaking research and have proven organising ability; for (b) must be A.R.I.B.A. and have had considerable office experience, preferably on large contracts; for (c) have passed Parts I and II of the R.I.B.A. examination and be capable of executing working drawings.

Further particulars and forms of application may be obtained from the County Architect, 123 London Road, Leicester, to whom they should be returned not later than December 31st 1959. The appointments are temporary but are likely to be for not less than a period of five years.

Removal expenses and lodging allowance may be paid to a married man.

CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1. Normal printing arrangements have been altered to allow for the Christmas holiday. The latest dates for receiving advertisements for the December issues are as follows:—

December 17 issue—Thursday, December 10.
December 24 issue—Wednesday, December 16.
December 31 issue—Tuesday, December 22.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

AIR-MAIL SERVICE available on request.

In response to requests from a number of Overseas subscribers for air-mail delivery of Public and Official Appointment details and Other Appointments Vacant, we have been pleased to arrange that cuttings of all such classified advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (i.e. 5d. for each additional week) and prepayment should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

Public and Official Announcements

30s. per inch; each additional line, 2s. 6d.

ARCHITECTURAL ASSISTANTS

REQUIRED BY
MINISTRY OF WORKS

For employment in London. Keen and enthusiastic Assistants of Intermediate R.I.B.A. standard are required for the design of interesting and varied types of buildings in all parts of the world. The salary range is from £550 (at age 21) to £900. Starting pay according to age and experience. 5-day week, 34 weeks annual leave. Good prospects of promotion and permanency. Permanent posts are pensionable and the pension scheme is non-contributory. Apply, giving details of age, training and experience to: E. Bedford, C.B., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, Abell House, Room 435, John Islip Street, London, S.W.1. 6456

CITY OF MANCHESTER

CHIEF ASSISTANT PLANNING OFFICER required in the City Surveyor and Engineer's Department at a salary within J.N.C. Scale "C" (£1,385—£1,620).

Candidates must be appropriately qualified by examination and must have had considerable experience in the Planning and Development work of a local authority.

This appointment offers practical experience on large scale projects, many of which are due to be carried out very shortly. Housing accommodation and removal expenses.

Applications, stating age, education, qualifications and experience, together with the names of three referees, to the Town Clerk, Town Hall, Manchester, 2, in an envelope endorsed "Chief Assistant Planning Officer," not later than 4th January, 1960. 7122

BOROUGH OF SOLIHULL

APPOINTMENT OF ASSISTANT ARCHITECTS Applications are invited for the following posts in the Borough Surveyor's Department:

- PRINCIPAL ASSISTANT ARCHITECT, A.P.T. V (£1,220 rising to £1,375 per annum).
- SENIOR ASSISTANT ARCHITECTS, A.P.T. Grade IV (£1,065 rising to £1,220 per annum).
- ASSISTANT ARCHITECTS, A.P.T. Grade Special (£785 rising to £1,100 per annum).
- ASSISTANT ARCHITECTS, A.P.T. Grade III (£880 rising to £1,065 per annum).
- ASSISTANT ARCHITECTS, A.P.T. Grade II (£765 rising to £880 per annum).
- ASSISTANT ARCHITECTS, A.P.T. Grade I (£610 rising to £765 per annum).

Applicants should have the appropriate qualifications and experience for the particular vacancy for which they are applying. In each case the commencing salary will be in accordance with the qualifications and experience of the selected applicant.

The vacancy for a Principal Assistant Architect, referred to in (a) above, will be required to take charge of the education section of the department, which section is responsible for the preparation of plans, etc., for a considerable number of new schools, extensions, etc., in the Borough.

In all cases, the appointments will be subject to the provisions of the Local Government Superannuation Acts, to the National Scheme of Conditions of Service, and to one month's notice on either side.

In suitable cases housing accommodation will be provided as soon as possible and half the reasonable cost of removal expenses paid.

Applications, quoting the post applied for and giving full details of past experience and qualifications, together with the names and addresses of two referees, should be submitted to the Borough Engineer and Surveyor, 90, Station Road, Solihull, Warwickshire, not later than Friday, the 18th December, 1959.

W. MAURICE MELL,

Town Clerk.

The Council House,
Solihull.
25th November, 1959.

COUNTY BOROUGH OF SWANSEA
BOROUGH ARCHITECTS' DEPARTMENT

Applications are invited for the post of ASSISTANT ARCHITECT—Salary Grade within the Special Class, £785 to £1,070. Applicants must be Associates of the R.I.B.A. and must have had considerable experience in the design and supervision of the erection of public buildings. Duties will include research into special forms of construction work.

Candidates must be under 45 years of age unless in Local Government Service.

The appointment will be subject to the provision of the Local Government Superannuation Acts and may be terminated by one month's notice on either side. The successful candidate will be required to pass a medical examination.

Forms of application may be obtained from the Borough Architect, The Guildhall, Swansea, to whom they must be returned not later than December 19th, 1959.

Canvassing disqualifies.

T. B. BOWEN,

Town Clerk.

The Guildhall,

Swansea.

25th November, 1959.

7124

BUILDING SURVEYORS

Architect's Department, L.C.C., has vacancies in Building Regulation Division and District Surveyors' Service for work in connection with applications under London Building Acts and by-laws. District Surveyors' offices are located in Metropolitan Boroughs and work involves negotiations with developers and supervision of works in progress.

Up to £1,135, commencing according to qualifications and experience. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/111/59, County Hall, S.E.1. (2628.) 7132

POPLAR BOROUGH COUNCIL invite applications for two ASSISTANT ARCHITECTS at a salary of £1,100 per annum (including London weighting). Applicants should have had experience in the design and construction of multi-storey flats and houses and public buildings. Application forms from Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3. Closing date 21st December, 1959. 7191

MIDDLESEX COUNTY COUNCIL

COUNTY ARCHITECTS' DEPARTMENT The County Council has decided to enlarge substantially the staff of this department with offices in Westminster and it is proposed to make a number of appointments in each of the following grades:—

- ASSISTANT ARCHITECT, A.P.T. V (£1,250—£1,405 p.a.).
- ASSISTANT ARCHITECT, A.P.T. IV (£1,095—£1,250 p.a.).
- ASSISTANT ARCHITECT, Special Grade (£815—£1,100 p.a.).
- JUNIOR ASSISTANT, A.P.T. I (£640—£795 p.a.).

The department has in hand a large and interesting programme of works for School Buildings, Technical Colleges, Old People's Homes, Fire Stations and other County Buildings which will be designed under the direction of Mr. Whitfield Lewis, F.R.I.B.A., the County Architect. Organisation is on a group basis and full scope will be given to Architects who show design ability.

Applications are also invited for a post of ASSISTANT ARCHITECT, A.P.T. IV, to set up and take charge of a Technical Information Group and for a QUANTITY SURVEYOR, A.P.T. V, to undertake elemental analysis of estimates and preparation of costings for current building techniques.

Appropriate professional qualifications are required for all posts and commencing salaries will be assessed according to qualifications and experience. Appointments will be to the established staff subject to medical fitness and prescribed conditions.

Application forms From The County Architect, 1, Queen Anne's Gate Buildings Dartmouth Street, S.W.1. must be returned within 10 days. (Quote B.470 S.O.) 7045

BOROUGH OF CHATHAM
APPOINTMENT OF ADDITIONAL
ARCHITECTURAL STAFF

Applications are invited for the appointment of ASSISTANT ARCHITECT within Special Grade, £785—£1,070.

Applicants must be professionally qualified and suitably experienced.

Applications, with the names and addresses of two referees, should be delivered to Mr. J. A. T. Richards, Borough Engineer and Surveyor, Town Hall, Chatham, not later than Saturday, 2nd January, 1960.

Housing accommodation will be available in an appropriate case.

The appointment will be:—

(a) In accordance with the National Scheme of Conditions of Service.

(b) Terminable by one month's notice on either side.

(c) Superannuable, subject to satisfactory medical report.

In accordance with their usual practice the Council will require the successful candidate to give an undertaking to remain in the Council's service for two years.

ROWLAND NEWNES

Town Clerk.

Town Hall,
Chatham.

7175

WORCESTERSHIRE COUNTY COUNCIL Applications are invited for the post of ASSISTANT ARCHITECT, Special Grade (£785—£1,070). The County Council owns some housing accommodation for which a successful candidate may apply.

Application forms and further particulars can be obtained from L. C. Lomas, F.R.I.B.A., County Architect, 14, Castle Street, Worcester, not later than 18th December, 1959. (T. 273.) 7084

BRITISH RAILWAYS

LONDON MIDLAND REGION ASSISTANT QUANTITY SURVEYORS required for "Taking Off," preparation of estimates, and assisting in settlement of final accounts under supervision, for Architectural Building Works. Applicants should be of Intermediate R.I.C.S. standard.

Salary range £835—£963 per annum. Five-day week. Residential travel and other travelling concessions available. Superannuation Scheme.

Applications, stating age and qualifications, and quoting reference No. 87, to: W. R. Headley, A.R.I.B.A., A.A.Dipl., Architect, Chief Civil Engineer's Office, British Railways (London Midland Region), 5a, Euston Grove, London, N.W.1. 7163

COUNTY BOROUGH OF BOOTLE BOROUGH SURVEYOR'S DEPARTMENT Applications are invited for the following appointments:—

- Two ASSISTANT ARCHITECTS on Grade A.P.T. IV, £1,065 to £1,120 per annum.
- One ASSISTANT ARCHITECT on Grade A.P.T. III, £880 to £1,065 per annum.
- One ARCHITECTURAL ASSISTANT on Grade A.P.T. II, £765 to £880 per annum.
- One ARCHITECTURAL ASSISTANT on Grade A.P.T. I, £610 to £765 per annum.

Preference will be given to those having experience in the design and planning of schools and public buildings.

Application forms from the Borough Surveyor, Town Hall, Bootle 20, Lancs. are returnable by Tuesday, 22nd December, 1959.

By Order.

HAROLD PARTINGTON,

Town Clerk.

7171

HODDESDON URBAN DISTRICT COUNCIL Applications are invited for the appointment of ARCHITECTURAL ASSISTANT at a salary in accordance with Grade A.P.T. II of the National Conditions of Service.

Applicants must have a good experience in architectural design and construction and preference will be given to those who have passed the Intermediate Examination of the Royal Institute of British Architects. The appointment is subject to the successful candidate passing a medical examination and to one month's notice in writing on either side. Housing accommodation will be provided, reasonable removal expenses paid, and a casual user car allowance will be considered.

Applications stating present appointment, age, experience and qualifications, together with the names of two referees, must be delivered to the undersigned not later than 19th December, 1959. Applicants must disclose in writing whether or not they are related to any member or senior officer of the Council. Canvassing will disqualify.

LEONARD G. JOHNS,

Clark of the Council.

Council Offices,
Hoddesdon,
Herts.

7176

CITY OF CAMBRIDGE

ASSISTANT ARCHITECT

Special Grade (£785—£1,070)

This post is in the Architects' Section of the City Surveyor's Department and offers responsible, varied and interesting work to an architect with good practical office experience, capable of carrying through projects from sketch plan to completion. A knowledge of design and construction of Multi-storey Flats and/or Schools would be an advantage.

Applicants must be Associates of the R.I.B.A. and placing on scale will depend on experience. N.J.C. conditions of service apply and the Council may provide housing.

Application forms from the City Surveyor, the Guildhall, Cambridge, to be returned by the 21st December, 1959.

A. H. I. SWIFT,

Town Clerk.

7177

BRACKNELL DEVELOPMENT CORPORATION Applications are invited for the post of ASSISTANT QUANTITY SURVEYOR in one of the following grades:—

- APT Grade II (£765—£880). To qualify for this grade candidates will be to show sound knowledge and experience up to the Intermediate standard of the R.I.C.S. examinations, or
- APT Grade I (£610—£765). Candidates with less experience and knowledge than that stated in (a) above, will be offered the appointment in this Grade.

Duties embrace Housing, Town Centre and Industrial buildings. Superannuation schemes, medical examination. Housing available.

Apply by December 30th, 1959, giving age, education and qualifications, experience and appointments held (with dates), and names of two referees, to General Manager (O.S.), Bracknell Development Corporation, Farley Hall, Bracknell, Berks. 7207

**BUCKS COUNTY COUNCIL
DEPUTY HEATING & LIGHTING ENGINEER**
Grade "A." £1,240-£1,390 p.a.

Applications are invited for the above appointment in the County Architect's Department. Candidates must be capable of designing large scale heating and ventilating installations and have experience in the supervision of technical staff.

The appointment is superannuable and subject to medical examination.

A weekly allowance of 25s. and return fare home once every two months may be paid for six months to newly appointed married officers of the Council unable to find accommodation.

Applications, on forms provided, must be returned by 1st January, 1960.

F. B. POOLEY,
County Architect.

County Offices,
Aylesbury. 7178

BUCKS COUNTY COUNCIL

Applications are invited for the following appointments in the County Architect's Department:—

One SENIOR ASSISTANT LIGHTING ENGINEER, A.P.T. Grade V, £1,220-£1,375 p.a.

One SENIOR ASSISTANT HEATING ENGINEER, A.P.T. Grade V, £1,220-£1,375 p.a.

The appointments are superannuable and subject to medical examination.

A weekly allowance of 25s. and return fare home once every two months may be paid for six months to newly appointed married officers of the Council unable to find accommodation.

Applications, on forms provided, must be returned by 1st January, 1960.

F. B. POOLEY,
County Architect.

County Offices,
Aylesbury. 7179

**JERSEY CIVIL SERVICE
TOWN PLANNING OFFICER**

It is intended to inaugurate a town planning office in St. Helier, Jersey, to prepare development plans for the Island of Jersey, for the main town of St. Helier and for other urban areas.

Applications are invited for the post of Planning Officer whose duties will include the setting up and running of the planning office, the conducting of surveys, the preparation of the necessary plans and reports for submission to the States' Assembly and advising as to the control of current development.

The successful applicant will be in charge of the Planning Office and responsible to the appropriate States Committee and will be expected to work under the general guidance of a Planning Consultant in the first instance.

Conditions of service: commencing salary in range £1,200 x £40 to £1,400. Post will be pensionable under a new contributory scheme. Reciprocal pension arrangements exist with U.K. Civil Service so as to preserve pension rights on transfer, similar arrangements are being made with U.K. Local Government Service. Financial assistance is given in connection with travelling and removal expenses, but housing accommodation cannot be provided. Number of houses available for renting in Jersey is limited, but flats are obtainable more easily at approximate rents of £3 to £4 per week. Further details of conditions of service may be obtained if required, see Box number given below.

Applicants must be between 30 and 40 years of age, A.M.T.P.I., and must have at least one other professional qualification or degree in either Architecture or Estate Management.

Reply in first instance to Box 65/17, 89, Bedford Court Mansions, Bedford Avenue, London, W.C.1. 7189

SHIPLEY URBAN DISTRICT COUNCIL

Applications are invited from appropriately qualified persons for the following appointments: (a) ENGINEERING ASSISTANT, Special Grade (£785-£1,075).

(b) ARCHITECTURAL ASSISTANT, Special Grade (£785-£1,075).

(c) JUNIOR ENGINEERING ASSISTANT, Grade A.P.T. II (£765-£880).

(d) JUNIOR ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£765-£880).

The posts are superannuable and subject to the provisions of the National Scheme of Conditions of Service, and in each case the commencing salary will be fixed according to experience and qualifications.

Housing accommodation will be provided if required.

Applications, stating age, details of training, qualifications and experience, with the names and addresses of two referees to be sent to the Engineer and Surveyor, Town Hall, Shipley, Yorkshire, by 10 a.m. Tuesday the 22nd December, 1959.

ERNEST PEARS,
Clerk and Solicitor. 7195

COUNTY BOROUGH OF READING

ASSISTANT ARCHITECTS

Applications are invited for the above appointments. Candidates must have passed Parts I and II, R.I.B.A. Final or Special Final Examination or their equivalent and have had at least five years' experience. Salary range £785 x £40 (3) x £45 (1) x £40 (3)-£1,070 according to experience.

Posts permanent and appointment subject to N.J.C. Conditions. Housing accommodation will be considered. Applications, stating age, qualifications and experience, together with names and addresses of two referees to Borough Architect, P.O. Box 17, Town Hall, Reading, not later than Wednesday, 30th December, 1959. 7158

ARCHITECTURAL ASSISTANT required by HAYES & HARLINGTON U.D.C. Salary within Grade A.P.T. II, i.e., £765-£880 per annum, plus London weighting, 21-25 years £20 per annum, 26 years and over £30 per annum. Candidates should have passed the Intermediate Examination of the R.I.B.A. and must have had good general Architectural experience. Five-day week. The Council is unable to assist with the provision of housing accommodation. Further particulars, conditions of service and form of application obtainable from the undersigned, which when completed, must be returned by 29th December, 1959.

GEORGE HOOPER,
Clerk and Solicitor.

Town Hall,
Hayes, Middx. 7164

WESTERN REGIONAL HOSPITAL BOARD
Owing to an expansion in the work being undertaken directly by the Architectural Division in connection with major hospital development schemes, etc., additional staff is required and applications are invited for the following posts:—
SENIOR ASSISTANT ARCHITECT
(3 Posts)
Salary scale, £1,050 x 6 annual increments-£1,245.

ASSISTANT ARCHITECT
(6 Posts)

Salary, £730 x 10 annual increments-£1,055.

The above salary scales are at present under negotiation on the Whitley Council.

In the Assistant grade starting salary may be above the minimum having regard to experience.

Candidates must be Registered Architects, having passed the requisite examinations. Previous hospital experience will be an advantage.

The appointments are superannuable and are terminable on two months' notice on either side. Successful candidates may be required to pass a medical examination.

Applications, stating age, qualifications, and full details of previous experience, together with the names of three referees, should be addressed to the Secretary, Western Regional Hospital Board, 64, West Regent Street, Glasgow, C.2, within fourteen days of the appearance of this advertisement. 7223

WESSEX REGIONAL HOSPITAL BOARD
Applications are invited for the following appointments on the Staff of the Board's Architect:—

ASSISTANT ARCHITECTS
Salary £730-£1,055 p.a. Commencing salary according to age and experience. Applicants must be Registered Architects and preferably Associate Members of the Royal Institute of British Architects.

SURVEYING ASSISTANT
Salary £545 (at age 21 or over) rising to a maximum of £765 p.a. Commencing salary according to age and experience. Applicants must have passed the Intermediate Examination of the Royal Institute of Chartered Surveyors or an examination giving exemption therefrom.

TRACER
Salary according to age, £210 p.a. at 16; £263 p.a. at 18, rising to a maximum of £455 per annum.

Extensive hospital development is anticipated and the existing salary scales are at present under review.

Application forms may be obtained from the Secretary of the Board, Highcroft, Romsey Road, Winchester, and must be returned completed within 14 days of the appearance of this advertisement. 7161

ROYAL COUNTY OF BERKSHIRE

ASSISTANT QUANTITY SURVEYORS are required mainly for taking-off in connection with a varied and interesting programme of building work.

Candidates should be Associate Members of the R.I.C.S. (Quantities Sub-Division) or members of the I.Q.S.

Salary scale A.P.T. Special Grade (£780-£1,070), point of entry dependent on experience.

The Council have a small number of staff houses and flats, some of which become available from time to time.

Assistance is given with removal expenses. Application forms, obtainable from the County Architect, Wilton House, Parkside Road, Reading, are to be returned by December 22nd, 1959. 7159

CITY OF LINCOLN

CITY ARCHITECT'S DEPARTMENT

Applications are invited for the undermentioned posts on the established staff of the City Architect:—

(a) ARCHITECTURAL ASSISTANT, A.P.T. I (£610-£765).

(b) JUNIOR ARCHITECTURAL ASSISTANT, General Division (£210-£595).

These vacancies offer interesting and varied experience on major projects which can lead to a rewarding career.

In the case of (b) previous experience is not necessary, provided the applicant possesses the appropriate General Certificate of Education.

The posts are superannuable and a medical examination is required.

Applications, stating age and experience, together with the names of two persons to whom reference may be made, should be submitted to Mr. R. B. Alexander, F.R.I.B.A., M.T.P.I., City Architect, Stamp End, Lincoln, not later than 4th January, 1960.

J. HARPER SMITH,
Town Clerk. 7242

Town Clerk's Office,
Lincoln. 7242

CITY AND COUNTY OF KINGSTON UPON HULL

TOWN PLANNING DEPARTMENT

Applications are invited from suitably qualified persons for the following appointments in the Design, Redevelopment and Estates Sections of the above Department.

1. SENIOR PLANNING ASSISTANTS (2), Grade A.P.T. IV (£1,065 to £1,220 per annum).

2. SENIOR PLANNING ASSISTANTS (2), Grade for Special Classes of Officers (£785 to £1,070 per annum).

The commencing salary will be within the above scales and commensurate with experience and ability, and consideration will be given to the provision of housing accommodation in appropriate cases.

Application forms may be obtained from the undersigned and should be returned not later than Saturday, 19th December, 1959.

H. F. ALSTON,
M.T.P.I., A.R.I.C.S., A.M.I.Mun.E.

Guildhall,
Kingston upon Hull. 7147

27th November, 1959.

AYR COUNTY COUNCIL invite applications for the following posts in their Planning Department:—

(1) SENIOR PLANNING ASSISTANT. Salary scale £915 x £25 (5), £50 (1) and £30 (1) to £1,120 p.a. Applicants should be Corporate Members of Town Planning Institute and preference will be given to those who also hold architectural qualifications. They should be experienced in preparation of town maps and in particular preparation of schemes of comprehensive development. House available near Ayr if required; (2) ASSISTANT APPLICATIONS OFFICER, salary scale £675 x £20 (8) and £30 (1) to £865 p.a. Applicants must have passed the Intermediate Examination of Town Planning Institute and have had good practical experience of procedure for dealing with applications for planning permission. Both posts superannuable and placing on scales will be given according to qualifications and experience. In each case, applications giving age and particulars of qualifications and experience, with names of two referees, should be lodged with the County Clerk, County Buildings, Ayr, before 18th December. Canvassing disqualifies. 7140

Applications must have passed the Intermediate Examination of Town Planning Institute and have had good practical experience of procedure for dealing with applications for planning permission.

Both posts superannuable and placing on scales will be given according to qualifications and experience. In each case, applications giving age and particulars of qualifications and experience, with names of two referees, should be lodged with the County Clerk, County Buildings, Ayr, before 18th December. Canvassing disqualifies. 7140

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Both posts superannuable and placing on scales will be given according to qualifications and experience. In each case, applications giving age and particulars of qualifications and experience, with names of two referees, should be lodged with the County Clerk, County Buildings, Ayr, before 18th December. Canvassing disqualifies. 7140

Applications must have passed the Intermediate Examination of Town Planning Institute and have had good practical experience of procedure for dealing with applications for planning permission.

Both posts superannuable and placing on scales will be given according to qualifications and experience. In each case, applications giving age and particulars of qualifications and experience, with names of two referees, should be lodged with the County Clerk, County Buildings, Ayr, before 18th December. Canvassing disqualifies. 7140

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Both posts superannuable and placing on scales will be given according to qualifications and experience. In each case, applications giving age and particulars of qualifications and experience, with names of two referees, should be lodged with the County Clerk, County Buildings, Ayr, before 18th December. Canvassing disqualifies. 7140

CITY OF BIRMINGHAM

Following a review of the Department's Establishment, the CITY ARCHITECTS' DEPARTMENT is now in a position to invite applications from

QUALIFIED ARCHITECTS

for appointments at commencing salaries, according to experience and capabilities, within the following Grades:—

- (a) A.P.T. V £1,220/£1,375 per annum.
(b) A.P.T. IV £1,065/£1,220 per annum.
(c) Special Scale £785/£1,070 per annum.

A large new Exhibition Hall with multi-storey car park and other public buildings, forming part of the new Civic Centre plan, are included in a building programme which also comprises Schools, Technical Colleges, Colleges of Further Education, and Schemes of Comprehensive Housing Development, including tall blocks of dwellings, Shopping Centres and ancillary buildings.

A great opportunity exists for enthusiastic and imaginative Architects who wish to assist in work of such architectural importance.

Pension Scheme. Five day week. Medical examination.

Applications stating appointment applied for, age, present position and salary, qualifications, experience and two referees to reach the under-signed by 31st December, 1959.

A. G. SHEPPARD FIDLER,

Civic Centre, Birmingham, 1. 7226

CITY OF LEICESTER

CITY ARCHITECTS' DEPARTMENT

Applications are invited for the following appointments:—

- (a) ASSISTANT ARCHITECT (General Section) Special Grade £785-£1,070 p.a.
(b) ASSISTANT ARCHITECT (Housing Section) Special Grade £785-£1,070 p.a.
(c) ASSISTANT QUANTITY SURVEYORS Grade APT IV £1,065-£1,220 p.a.
(d) ASSISTANT QUANTITY SURVEYOR Special Grade £785-£1,070 p.a.

Current projects of the General Section include new Municipal Baths and Civic Centre. The work of the Housing Architects includes redevelopment of central areas.

Applicants for posts (c) and (d) should be A.R.I.C.S. and have had considerable experience in the preparation of Bills of Quantities, Final Accounts and Valuations.

Previous local government experience not essential. House accommodation at an economic rent will be provided if necessary. National Conditions of Service apply.

Applications, together with the names of two referees, should reach the undersigned not later than Wednesday, 23rd December, 1959.

J. H. LLOYD OWEN,

City Architect.

10 Loseby Lane, Leicester. 7215

COUNTY BOROUGH OF NORTHAMPTON

- (a) SENIOR ASSISTANT ARCHITECT (EDUCATION). A.P.T. V (£1,220-£1,375).
(b) SENIOR ASSISTANT ARCHITECT (HOUSING). A.P.T. IV (£1,065-£1,220).

Applications are invited for these appointments in Northampton which has an interesting programme of new schools, Municipal buildings and multi-storey flats in redevelopment schemes. Car allowances will be paid in appropriate circumstances.

Full particulars and application forms, returnable by 23rd December, from Borough Architect, Guildhall, Northampton.

C. E. VIVIAN ROWE,

Town Clerk. 7202

CITY AND COUNTY OF BRISTOL

PLANNING ASSISTANT

Special N.J.C. Scale

Applications invited for post of a Planning Assistant, Special N.J.C. Scale (£785-£1,070 p.a.) in City Engineer and Planning Officer's Department. Applicants must have passed Final Examination of Town Planning or other appropriate Institute. Post superannuable; medical examination.

Housing needs of successful candidate and question of contribution towards removal expenses favourably considered.

Applications, stating age, qualifications, experience, present and previous appointments, with names of two referees, to City Engineer and Planning Officer, Cabot House, Deanery Road, Bristol 1, by 23rd December. 7188

GOVERNMENT OF GAMBIA

ARCHITECT, PUBLIC WORKS DEPARTMENT

To take charge of the Architectural Branch and to carry out the planning and design of all Government Architecture under the general supervision of the Director of Public Works, Contract appointment. Salary range £1,085 to £1,680. Gratuity (25 per cent. of emoluments). Free passages. Rented quarters. Candidates aged 35-45 must be A.R.I.B.A. with considerable post qualification experience. Write Director of Recruitment, Colonial Office, London, S.W.1, giving full names, age, qualifications and experience, enclosing RCD. 112/12/01/E2. 7243

MIDLANDS ELECTRICITY BOARD

SENIOR DRAUGHTSMAN (Architectural) required at the Birmingham & District Sub-Area Headquarters.

A thorough technical training and practical experience in the design of and the preparation of complete working drawings for new buildings and alterations to existing buildings is essential. Appropriate qualifications desirable.

Salary within the range £620-£890 per annum. (N.J.C. Schedule "D." Grades 6 or 5) according to qualifications and experience. Superannuable. Apply by letter, within 14 days, stating age, experience, present position and salary, to Emil Braathen, Sub-Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4. F. W. CATER, Secretary. 7200

1st December, 1959.

GLOUCESTERSHIRE COUNTY COUNCIL

ARCHITECTURAL ASSISTANT

(QUALIFYING CLASS)

A.P.T. Grade I (£616-£765). A.P.T. Grade II (£765-£880) or Special Grade (£785-£1,070).

Applicants for Grades I and II must have passed the Intermediate Examination R.I.B.A. and for Special Grade the Final Examination. N.J.C. Service Conditions, superannuation, medical examination.

Apply, giving age, present position, salary and date of appointment details of previous appointments, and names and addresses of two persons for reference, to County Architect, Shire Hall, Gloucester, by 21st December.

GUY W. DAVIES,

Clerk of the Council. 7201

NORTHERN IRELAND HOUSING TRUST

ASSISTANT ARCHITECT

The Trust invites applications for the post of Assistant Architect on the salary scale £1,150-£1,300.

Candidates must be Associate Members of the Royal Institute of British Architects.

The person appointed will be required to participate in a contributory superannuation scheme which allows for the reciprocal transfer of benefits in local government schemes.

Assistance in obtaining housing accommodation may be given to a successful married candidate.

Applicants should apply by Thursday, 24th December, 1959, giving full details of age, qualifications and experience, including present post and salary, to the General Manager, Northern Ireland Housing Trust, 12, Hope Street, Belfast, 12.

Please mark envelope 33/75. 7217

NOTTINGHAMSHIRE COUNTY COUNCIL

APPOINTMENT OF ASSISTANT ARCHITECTS

A.P.T. Special Grade and A.P.T. IV

Applications are invited from students who have passed the Final Examination of the R.I.B.A. or the Diploma Examination of a recognised school or from qualified Architects to work on the County Council's major building programmes. These programmes are handled by four groups of approximately eight Architects per group, under a Group Leader. All the Architects in the group carry out in turn the design, organisation and supervision of projects as Job Architects through all stages of the job from sketch plan to completion. As part of carrying out the County Council's building programme, the office has a policy of continuous development in planning and construction, on which all Architects take part from time to time.

The salary of the A.P.T. Special Scale ranges from £785-£1,070 and that of Grade A.P.T. IV from £1,065-£1,220. The commencing salary to be offered in each case will be in accordance with ability and experience. Starting dates by agreement.

Forms of application may be obtained from the County Architect, County Hall, West Bridgford, Nottingham, to whom they should be returned as soon as possible.

A. R. DAVIS,

Clerk of the County Council. 7205

CHERTSEY URBAN DISTRICT COUNCIL

APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of Architectural Assistant in the Engineer and Surveyor's Department at a salary in accordance with A.P.T. Grade II (£765-£880 per annum).

Applicants should have passed the Intermediate Examination of the R.I.B.A. Excellent opportunity for gaining good experience. Work in hand includes multi-storey flats and Central Library.

Applications, giving details of training and experience, with names and addresses of two referees to N. C. Goldsmith, M.B.E., M.I.Mun.E., F.R.S.A., Engineer & Surveyor, Council Offices, Chertsey, Surrey, before 29th December, 1959.

State whether related to any member or senior officer.

Canvassing disqualifies.

A. REX HERBERT,

Clerk of the Council. 7231

COUNTY BOROUGH OF TYNEMOUTH

BOROUGH SURVEYOR'S DEPARTMENT

1. SENIOR ASSISTANT ARCHITECTS required (salary up to £1,070) for housing and general architectural work. The Department has a full and varied programme of work in hand, including 6-storey flats, and Municipal Offices.

The starting salary will be in accordance with qualifications and experience, and the Council may assist in the provision of housing accommodation.

2. JUNIOR ASSISTANT ARCHITECT (£610-£765) is also required.

3. ASSISTANT QUANTITY SURVEYOR (£610-£765) required.

Application forms, together with conditions of appointment, are obtainable from D. M. O'Herrily, O.B.E., B.Sc.(Eng.), M.I.C.E., 16, Northumberland Square, North Shields, to whom they should be returned by 31st December, 1959.

F. G. EGNER,

Town Clerk. 7232

1st December, 1959.

CITY OF STOKE-ON-TRENT

CITY ARCHITECTS' DEPARTMENT

ASSISTANT ARCHITECT (Final R.I.B.A.) required. Special scale £785-£1,070. Commencing salary within this range according to experience.

Applications to J. R. Piggett, T.D., F.R.I.B.A., City Architect, Kingsway, Stoke-on-Trent, by Thursday, 31st December, 1959.

HARRY TAYLOR,

Town Clerk. 7160

Read this extract from

AN AMAZING REPORT ON WESTMORLAND GREEN SLATE

items manufactured 40 centuries ago

For
CLADDING
be sure and specify
HIGH FELL WESTMORLAND GREEN SLATE

My own axe head picked up on the scree below Pike o' Stickle many years ago looks exactly as if it was chipped out last week. There is not a sign of weathering on the lovely grey, green surface and the edges are still sharp enough to demand careful handling. Yet it had lain on this scree slope for something like 4,000 years and had been fashioned not many yards away by some hairy, prehistoric man 2,000 years before the dawn of Christianity.

from
'Leaves from a Lakeland Notebook'
by A. H. Griffin.

Our leaflet on this subject received RIBA/Building Centre Award 1958 and together with literature on other applications is available on request.

Limestone & Green Slate Slab Co. Ltd., Appleby Rd., Kendal

BOROUGH OF LUTON

Applications invited for:—
(a) SENIOR ARCHITECTURAL ASSISTANTS, A.P.T. IV (£1,065—£1,220).
(b) ARCHITECTURAL ASSISTANTS, A.P.T. I, Special (£610—£1,070).
(c) QUANTITY SURVEYING ASSISTANTS, A.P.T. I, Special (£610—£1,070).
(d) HEATING ENGINEERING ASSISTANT, Gen. Div., A.P.T. III (£240—£1,065).
Applicants for Senior posts (a) must be A.R.I.B.A. and should have had considerable practical experience.
The grade and commencing salary for (b), (c) or (d) will be within the range stated according to experience and qualifications. Applicants holding intermediate qualifications will be appointed in A.P.T. II.

The Corporation is undertaking a considerable development programme of varied and interesting work including Public Library, Baths Establishment, Cleansing and Transport Depots, Schools and other civic schemes.
Consideration will be given to the provision of housing accommodation and payment of removal expenses in approved cases.
Application forms from Borough Architect, Town Hall, Luton, returnable by 21st December, 1959. Previous applicants need not apply again.

BOROUGH OF SCUNTHORPE

(An expanding modern town of 61,000 population, 7,895 acres, R.V. £1,084,880).
Applications are invited for the following appointments in the Borough Engineer and Surveyor's Department:—
SENIOR ASSISTANT ARCHITECT, A.P.T. IV (£1,065—£1,220 p.a.).
ASSISTANT ARCHITECT, Special Grade (£785—£1,070 p.a.) or A.P.T. III (£880—£1,065 p.a.).
ASSISTANT ARCHITECTS, A.P.T. II (£765—£880 p.a.).
QUANTITY SURVEYING ASSISTANT, A.P.T. II (£765—£880 p.a.).
TOWN PLANNING ASSISTANT, A.P.T. II (£765—£880 p.a.).
Commencing salaries will be fixed according to qualifications and experience.
Housing accommodation is available if required, 50 per cent. of approved removal expenses paid up to commencing salary of £885 p.a.
Applications, giving particulars of age, experience, qualifications and appointments, together with the names of two referees, should be submitted to the undersigned not later than 21st December, 1959.

T. M. LISTER,
Town Clerk.

Municipal Offices,
34, High Street,
Scunthorpe.
28th November, 1959.

CITY AND ROYAL BURGH OF DUNFERMLINE

BURGH ARCHITECT'S DEPARTMENT
Applications are invited for the post of SENIOR ASSISTANT ARCHITECT on salary scale £795—£1,075 with placing according to age, qualifications and experience. The post is superannuable and subject to medical examination.
Applicants should be Associate Members of the Royal Institute of British Architects and must have had, since qualification, at least three years' practical experience.
Applications stating age, experience, qualifications and details of present appointment, together with copies of two recent testimonials to be lodged as soon as possible with the Burgh Architect, 6, Abbot Street, Dunfermline.
The post has been designated by the Town Council for priority housing.

J. DOUGLAS,
Town Clerk.

City Chambers,
Dunfermline.
2nd December, 1959.

HARLOW DEVELOPMENT CORPORATION
ASSISTANT ARCHITECTS. Applications are invited from candidates interested in taking part in New Town work. Candidates should have passed R.I.B.A. Intermediate or equivalent. Salary within the range £765—£850 p.a. Housing provided in suitable cases. Applications within fourteen days to General Manager, Terlings, Harlow, Essex.

BREDBURY AND ROMILEY URBAN DISTRICT COUNCIL
ARCHITECTURAL ASSISTANT required in the office of the Engineer and Surveyor. New appointment. Grade Special or A.P.T. III according to qualifications and experience.
Fuller details and application forms from Clerk of the Council, Council Offices, Bredebury, Cheshire. Closing date 4th January.

**NORFOLK COUNTY COUNCIL
PLANNING DEPARTMENT
APPOINTMENT OF SENIOR PLANNING ASSISTANT (TREES)**

The above newly-created post in an expanding department offers a most interesting and rewarding career to a person possessing a suitable qualification in forestry (preferably a degree), or landscape architecture or planning, plus an enthusiasm for the countryside.
Salary will be within the Special Scale, £785—£1,070 p.a. (commencing point according to experience or other special factors).
Further particulars may be obtained from the undersigned. Applications, with names of two referees, to be submitted by 21st December, 1959.

R. I. MAXWELL,
County Planning Officer.

41/43, Thorpe Road,
Norwich. 7206

BOROUGH OF ILKESTON

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT within the Special Classes Grade (£785—£1,070).
Commencing salary to be according to qualifications and experience.
Housing accommodation available. Canvassing disqualifies.
Application forms and conditions of appointment obtainable from A. O. Marshall, Borough Surveyor & Water Engineer, Town Hall, Ilkeston, to whom they are to be returned by Monday, 4th January, 1960.

J. YATES,
Town Clerk.

**SOUTHERN ELECTRICITY BOARD
ARCHITECTURAL ASSISTANT**

Sub-Area Office of No. 3 (Portsmouth) Sub-Area. Salary N.J.B. Grade 5 Schedule "D" (£790 × £20—£890 per annum). N.J.B. Conditions of Service.

Candidates should have had experience in an Architect's office and be capable of designing and administering, during the construction stage, building work in connection with offices, showrooms, workshops, etc. The possession of suitable qualifications would be an advantage.

The successful candidate will be required to contribute to the Electricity Supply (Staff) Superannuation Scheme, if eligible.
Applications on forms obtainable from the Sub-Area Secretary, Lower Drayton Lane, Cosham, Portsmouth, and returned to him, quoting Z.1116, not later than December 21, 1959.

CLERK OF WORKS required by Poplar Borough Council on scheme for construction of public slipper baths. Salary £910 per annum. Appointment is temporary and will commence at end of December. Applications with full details of experience, date of birth and particulars of two referees to Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3. Closing date: first post, 21st December, 1959.

**BOROUGH OF REDFORD
ENGINEER AND SURVEYOR'S DEPARTMENT**

Applications are invited for the following appointment in the Borough Engineer and Surveyor's Department.
Redford is a progressive and expanding County Town, the population of which exceeds 60,000 and is increasing by about 1,000 per annum. The present annual expenditure on new capital works is at the rate of £700,000 per annum.
CHIEF PLANNING ASSISTANT
Grade A.P.T. V (£1,220—£1,375) and car allowance of £130 per annum. Applicants should be Associate Members of the Town Planning Institute and preference will be given to those with at least one other appropriate qualification. The successful applicant will be directly responsible to the Deputy Borough Engineer and the duties will include Review of the Town Map, planning administration together with major redevelopment and estate planning.
The Council is prepared to assist with the provision of housing accommodation and to make a contribution of 50 per cent. of the removal expenses.

The above post is subject to the Scheme of Conditions of Service for Local Authorities Professional, Technical, Administrative and Clerical Service, one month's notice on either side and to the passing of a medical examination.
Application forms and fuller particulars may be obtained from the undersigned and should be returned not later than 18th December, 1959.

F. W. DAWKES,
Borough Engineer, Surveyor and Planning Officer.
Horne Lane,
Redford.
25th November, 1959.

INVERNESS COUNTY COUNCIL invite applications for appointments in the County Architect's Department as follows:—

- (a) One SENIOR ASSISTANT ARCHITECT (Section Leader), salary scale £1,060—£1,270 per annum.
- (b) One FIRST ASSISTANT ARCHITECT, salary scale £1,040—£1,120 per annum.
- (c) One SECOND ASSISTANT ARCHITECT, salary scale £795—£1,075 per annum.
- (d) One THIRD ASSISTANT ARCHITECT, salary scale £605—£735 per annum.

Applicants for appointment (a), (b) and (c) must be fully qualified and for appointment (d) should be qualified or about to qualify to Intermediate standard. Appropriate placing on salary scales will be given in accordance with qualifications and experience. Housing accommodation may be made available if required. Applications together with names and addresses of three referees to the County Clerk, County Buildings, Inverness, by 19th December, 1959.

**CITY OF PLYMOUTH
CITY ENGINEER & SURVEYOR'S DEPT.
PLANNING SECTION**

- Applications are invited for the following appointments:—
(I) SENIOR PLANNING ASSISTANTS, A.P.T. Grade V (£1,220—£1,375).
(II) PLANNING ASSISTANTS, A.P.T. Grade IV (£1,065—£1,220).
(III) PLANNING ASSISTANTS, A.P.T. Special Grade (£785—£1,070).
(IV) JUNIOR PLANNING ASSISTANT, A.P.T. Grade II (£765—£880).
(V) DRAUGHTSMAN, MISCELLANEOUS Grade V (£650—£715).

REQUIREMENTS—TECHNICAL QUALIFICATIONS.
Applicants for appointments (I) must be corporate members of the Town Planning Institute, and an additional qualification will be an advantage.

Applicants for appointments (II) and (III) must hold a suitable professional qualification.

Applicants for appointment (IV) must have passed the Intermediate Examination of the Town Planning Joint Examination Board, or equivalent.

REQUIREMENTS—EXPERIENCE
Applicants for appointments (I) and (II) must have had extensive planning experience with a large urban authority.

HOUSING ACCOMMODATION
Consideration will be given to making this available if it is desired.

REMOVAL EXPENSES
It is the practice of the Council to pay half the cost of household removal expenses up to a maximum contribution of £25.

AGE LIMIT
All appointments are superannuable subject to medical examination and the age limit is 40 years or 45 if serving with another local authority.

APPLICATIONS
Forms are available from the undersigned and must be returned by 1st January, 1960.

B.Sc., M.I.C.E., M.I.Mun.E., M.T.P.I.,
City Engineer & Surveyor.

The Guildhall,
Plymouth.

CITY OF BELFAST

Applications are invited for the following position in the Education Architect's Department:—
ARCHITECT, CLASS II.

Applicants must be registered architects with experience in general design and construction of modern buildings.

Salary: £825 × 6/£35 × £40—£1,075. Commencing remuneration will be determined according to ability and experience.

Superannuation contribution of approximately 6 per cent. of remuneration payable. Reciprocal pension arrangements exist between the Corporation and certain public authorities.

Canvassing will disqualify.
Application forms are obtainable from the Education Office, 40, Academy Street, Belfast, 1. Completed applications must reach the undersigned by 8th January, 1960.

JOHN DUNLOP,
Town Clerk.

City Hall,
Belfast.
P.O. Box 234.

BOROUGH OF WIMBLEDON
ARCHITECTURAL ASSISTANT, Grade A.P.T. II, £765 to £880, plus London weighting. Form of application from Borough Engineer & Surveyor, Town Hall, Wimbledon, S.W.19. Returnable by Thursday, 31st December, 1959. Canvassing disqualifies.

The new aids to
Roof Construction
FULLY GUARANTEED

Patent No. 764973



ARCHITECTS' JOURNAL
INFORMATION SHEET AND
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FROM
PARAMOUNT ASPHALTE
LIMITED
149 KENNINGTON PARK ROAD
LONDON, S.E.11
Tel.: RELiance 2373-2191

COUNTY BOROUGH OF GREAT YARMOUTH
GENERAL ARCHITECTURAL ASSISTANT
 Applications are invited for the appointment of a General Architectural Assistant in the Borough Engineer's Department at a salary in accordance with A.P.T. Grade 11 (£765-£880).

Applicants must have passed the Intermediate R.I.B.A. examination and be experienced in the design, construction and supervision of public buildings, housing and flats.

The Council is unable to offer housing accommodation.

The appointment is subject to one month's notice on either side, to the Local Government Superannuation Acts, and to the passing of a medical examination.

Applications in an envelope endorsed "General Architectural Assistant" giving names and addresses of two referees and stating age, professional training, qualifications, experience and present and previous appointments, with salaries, must reach me not later than Thursday, 31st December, 1959. Canvassing will disqualify.

FARRA CONWAY,
 Town Clerk.

Town Hall,
 Great Yarmouth.
 3rd December, 1959. 7238

THE ROYAL BOROUGH OF KENSINGTON
ARCHITECTURAL ASSISTANT required. Salary £620-£910 p.a. according to age and qualifications. Applications, stating age, qualifications, experience, etc., with names of two referees, to reach Town Clerk, Town Hall, W.8. by 21st December, 1959. 7244

Architectural Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d.
 Box Number, including forwarding replies, 2s. extra

LLEWELLYN SMITH AND WATERS require Senior and Junior ASSISTANTS for a widely varied programme of work. Salary according to experience. Please write stating qualifications, experience and age to 103, Old Brompton Road, S.W.7. 4622

EXPERIENCED ARCHITECTURAL ASSISTANTS required, one Qualified and one of at least Intermediate standard, for Branch Office, Birmingham, engaged on a varied and interesting programme of Commercial projects. The positions are pensionable and a five-day week is in operation. Applications, giving full particulars, to G. S. Hay, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester, 4. 4307

RONALD WARD & PARTNERS have immediate vacancies for ASSISTANT ARCHITECTS with initiative and some experience, for interesting, commercial, industrial and civic projects. Salaries commensurate with ability. Apply, 29, Chesham Place, S.W.1. BELGRAVIA 3561. 6538

ASSISTANTS required for busy Architect's City office: Laboratory and Industrial projects, Intermediate standard or above. Apply to: Secretary, Fairtlough and Morris, Temple Chambers, Temple Avenue, E.C.4. FLE. 6295. 5932

ARCHITECTURAL ASSISTANT at Final standard required by Buckinghamshire office. Interesting and varied work with scope for initiative and responsibility. State age, experience and salary required to Box 5871.

BOOTH, LEDEBOER AND PINCKHEARD, 17-20, Mason's Yard, Duke Street, St. James's, S.W.1. require ASSISTANTS in salary range £750-£1,100 p.a. Tel. TRA. 1866. 5957

ERIC FIRMIN & PARTNERS require Senior and Junior ASSISTANTS for work on industrial and commercial projects. Five-day week. Luncheon Vouchers. Salary by arrangement. Please apply 1 Holborn Circus, E.C.1. CITY 8811. 6684

ARCHITECTURAL ASSISTANTS, Senior and Junior, required by firm in High Wycombe for commercial and industrial schemes. Scope for responsibility and experience. Five-day week. Write Box 6636.

SENIOR ARCHITECTURAL ASSISTANT capable of making site surveys, preparing sketch plans, working drawings and specifications, and supervising work in progress. Applications stating age, experience, qualifications and salary required to R. E. Akerman, F.R.I.B.A., Chief Architect, United Dairies Ltd., 31 St. Petersburgh Place, W.2. 5760

TREHEARNE & NORMAN, PRESTON & PARTNERS, have vacancies for ARCHITECTS and ASSISTANTS with imagination and designing ability to assist with important new developments in the London area. Apply in confidence to 83, Kingsway, London, W.C.2. (HOL. 4071). 6429

SENIOR ASSISTANT required of Intermediate/Final standard in Croydon office. Varied practice of interesting work. Good draughtsman and sound knowledge of construction essential, together with ability to manage jobs. Five-day week. Salary according to experience. Apply, giving all particulars, to George Lowe & Partner, 4, High Street, Croydon SE26 9. 6444

SENIOR ASSISTANT ARCHITECT required to take charge of project. Apply Ronald Ward & Partners, 29, Chesham Place, S.W.1. BELGRAVIA 3561. 5998

THREE qualified **ARCHITECTURAL ASSISTANTS** with office experience required for (a) Industrial Work, (b) School Contracts, (c) large housing scheme abroad. Assistants will be expected to take the responsibility of running and supervising these contracts. Salary according to age (limit 35) and experience. Apply to J. M. Austin-Smith & Partners, 29 Sackville Street, London, W.1. 6565

SENIOR ASSISTANTS urgently required for busy City office engaged in industrial and commercial work, 5-day week. Luncheon Vouchers. Salary up to £1,200 according to experience. Box 6554.

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS required for general practice which includes Office Blocks, Schools, Churches, etc. Appointment to commence immediately or within next two months. Apply in writing to Sir Giles Scott, Son & Partner, 9 Gray's Inn Square, London, W.C.1. 6840

ASSISTANTS of Intermediate or equivalent standard, required for office in South Kensington. Interesting and varied work, offering scope for initiative, responsibility and opportunities for design. Commencing salary up to £800 per annum, according to qualifications. Five-day week. Apply R. Mountford Pigott & Partners, KENSINGTON 1242. 6776

ARCHITECTURAL ASSISTANTS required by Hasker & Hall, L/F.R.I.B.A., for senior and intermediate positions in their offices in London and Warwickshire. Good salary, with scope for initiative and responsibility. Write to 13 Welbeck Street, W.1. or telephone WEL. 0061 or Knowle (Birmingham) 3502. 6724

MORRIS DE METZ, F.R.I.B.A., requires an experienced **ARCHITECTURAL ASSISTANT** for a large interesting office building in London; drawing office on site. Salary up to £950. Tele.: HUNTER 2581. 6935

DENNIS S. LICHTIG requires experienced **ASSISTANT** for interesting work in his new Loughton office. The appointment offers good prospects for a keen man. Three minutes' walk from Central Line tube station. Five-day week. Salary range £700-£1,000. Apply to 24, Sparesize Hill, Loughton, Essex, or phone Loughton 5864. 6971

LOUIS DE SOISSONS, PEACOCK, HODGES, & ROBERTSON have immediate vacancies in their London office for Senior and Junior ASSISTANTS. Write, stating age, salary and experience, to the above at: 3 Park Square Mews, Upper Harley Street, N.W.1. 6972

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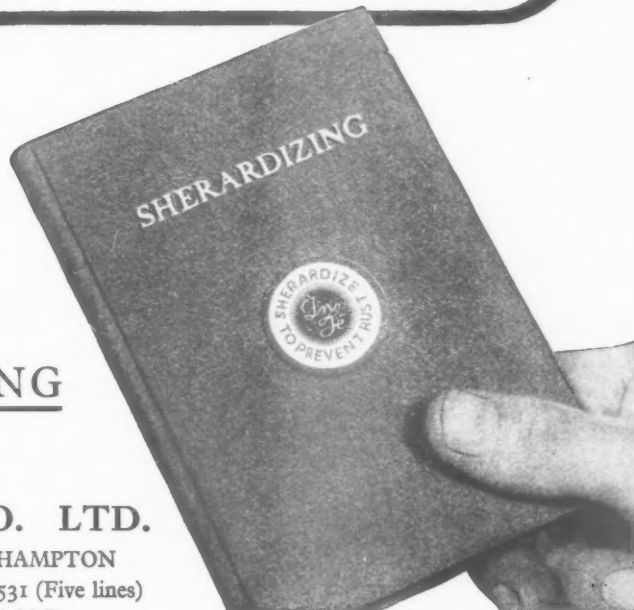
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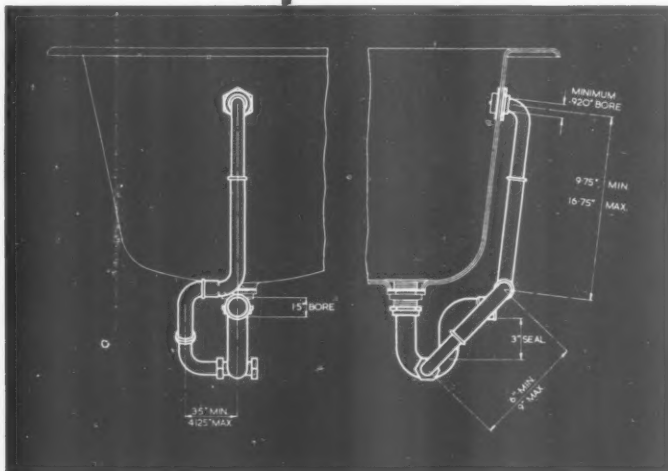


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